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PORT MARKETING AND THE CHALLENGE OF THE THIRD GENERATION PORT

Report by the UNCTAD secretariat

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Abbreviations

CFS	Container Freight Station
EDI	Electronic Data Interchange
FCL	Full Container Load
FTZ	Free Trade Zone
IAPH	The International Association of Ports and Harbors
ICC	International Chamber of Commerce
ICD	Inland Clearance Depot
LCL	Less Than Container Load
MTOs	Multimodal Transport Operators
TEU	Twenty-foot Equivalent Unit (container)

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INTRODUCTION

(i) This report has been prepared following the recommendations of the Ad hoc Intergovernmental Group of Port Experts which met in Geneva from 24 to 28 September 1990, in response to resolution 61, section IV (XIII) of the Committee on Shipping. In its recommendations on the future work programme of the secretariat, the group gave priority to five studies, including one on the "Development of the commercial function, promotion of the port area and of the concept of the port as a service centre".

(ii) Around the world, the broad pattern of port activities changed relatively little during the first sixty years of the 20th century. The situation has since changed radically. International trade has become a major vehicle for accelerating economic growth in developing countries. Trade has linked up all national economies into a single world economic system. This vital link is ensured through the world trade transportation system. Great changes have taken place in the volume and variety of trade and in the speed of movement of traded goods. Transport, especially maritime transport, by which even today more than 90 percent of the world trade volume is moved, has also changed greatly in organisation and technique, to meet ever growing requirements of trade. This is the new situation the world's ports are facing today.

(iii) Ports certainly can not remain unchanged. They, in fact, have a new role to play. The new trade and transport requirements are providing the ports both opportunities and risks. Their response to this new situation will determine the success or failure of each port. The competitive market and international trade will be the major arbitrators of this.

(iv) In this study, three questions are raised and attempts are made to answer them: (a) what is the new role of ports today; (b) why should ports be engaged in this new role; and (c) how can ports play this new role. The first question is analysed in chapters I and II by a presentation of the new trade and transport situation, an analysis of the new commercial functions of ports and especially of the new concept of a third-generation port. The second question is analysed in chapter III by an examination of different kinds of port competitions and of ports which are in a non-competitive situation. The third question is analysed in chapters IV and V by a description of port marketing activities and techniques, by the introduction of a port community concept and by a proposal for a port competitiveness model.

SUMMARY AND CONCLUSIONS

1. Today, growing international trade is transforming the world economy into a single system and integrating world transport activites. Ports are naturally being incorporated into this huge, changing and competitive system.

2. Ports have to change accordingly, to adjust to the new situation. One of the most fundamental changes should be in the attitude and policy regarding port management. Ports must take into account the effects of these activities on their operations which occur from the time of the production of goods to their consomption, or until they have reached the primary inland point of destination. Ports should be as commercially-oriented as the foreign trade and transport sectors that they service. Only if they are guided by this commercially-oriented philosophy can ports complete their new role.

3. Modern ports are no longer passive points of interface between sea and land transport, used by ships and cargo as the natural point of intermodal interchange. Ports are also no longer run in isolation. Modern ports play an active role in the world transport system: an active role in the marketing sense, in encouraging ships and cargo to use the ports concerned; an active role in shipping and inland transport interests as part of the through-transport chain; and an active role in helping to stimulate trade e.g. the development of free port or Free Trade Zone.

4. In its new role, an important modern port fulfils a number of functions: it provides an interface for cargo movement between land and sea; it may act as an entrepot storage and transshipment port; and it may be the location of an industrial and commercial export processing zone.

5. The port is not only the location of these activities, but it is also a service centre. It is a commercial service centre, providing a range of through-transport and commercial services to its users. It is a personal service centre, providing contacts to companies using the port with other organisations in the same country, or in other countries. A global market, intermodal services, computers and communication systems have nmade the port a technical service centre with an opportunity of becoming a major EDI access point for the entire trade and transport community. It has become an environmental centre, ensuring that appropriate environmental standards are maintained. Moreover, financial support from the national government may enable it to provide deep-water harbour and related facilities for the development of heavy industries. Briefly, a modern port is truly a service centre and a logistic platform for international trade and transport - a third generation port.

6. In the past, port activity was affected only by the foreign trade situation. Nowadays however, even if trade remains stable, port business can be lost overnight because of inter-port competition. As a consequence of improved inland transport infrastructure and intermodal transport, ports' "captive hinterlands" are disappearing, even in many developing countries. Ports share or have begun to share a common hinterland. They have to make every effort to be competitive in the cost and quality of services and to make the port a transport and distribution service centre. For most of the ports, this is not an option but a must; an essential requirement for survival in this win or lose situation.

7. The best way to win is to maintain a close contact with port users, listen to them, discuss with them, help them and satisfy them. That is port marketing. Ports should take an active approach to selling their services. Port managers should reinforce and attach great importance to port marketing. This is not the only way to make a port known, but it is the most efficient means of learning from port users and other relevant parties what the new requirements are and how the ports can adapt themselves to satisfy these requirements.

8. Port development and marketing concern every organisation in the port area, and it is in their common interest. This task is best carried out by the port community -- an organisation with a group of highly competent and motivated people, representing all interests of the port. Such an organisation and its activities can only be successful with the full support of all parties in the port, from the director to the night watchman and from the Customs office to the freight forwarding company. It must be based on a common commmmittment to port development, whereby it is realized that no one can be better off if the whole port is not and the port can not be better off without the joint effort of everyone.

9. Starting from the findings of port marketing, it is essential to work out appropriate development plans and marketing targets and to improve port competitiveness. As an alternative method, a port competitiveness model is suggested, which may help port managers to make appropriate improvements.

10. The 1990's will be the appropriate time for ports to respond to these new challenges. If governments, municipalities, Customs authorities, trade unions and employees give comprehensive support to upgrade port activities, ports can complete their new role and benefit the national economies.

Chapter I

RECENT DEVELOPMENT IN INTERNATIONAL TRADE AND TRANSPORT

11. The main reason way many ports have a new role to play is that the environment in which ports exist and operate is changing. International transport of which port is an element is undergoing important organisational, technological and commercial evolution. In turn, this evolution in transportation is the result of changing international trade. It is difficult therefore, to analyse the new role of ports without first examining the new circumstances of international trade and transport.

A. Changes in world trade patterns

12. Over the past thirty years, world trade has been growing faster than world production. Today world production is more internationalized than before. This has led to changes in shipping, ports and land transport and form the new economic and technical environment of the world trade transportation system.

1. Multiplication of world trade centres and groups

13. Until recently international trade was mainly concentrated in northwestern Europe and the east coast of North America. Nowadays world trade routes are much more diversified. This is specially due to accelerating industrial activities in the Pacific basin. Japan took the lead, followed by the Republic of Korea; Taiwan, Province of China; Singapore and Hongkong. New economic powers such as Thailand; Malaysia; Indonisia; and China came later. At the same time, industrial centres in the eastern part of North America have been moving westward to the Pacific Coast forming the Vancouver - California industrial belt. In addition to this dynamic pacific economic zone, new economic and trade centres are emerging in the southern part of North America, in Latin and South American countries such as Brazil and Mexico, as well as in the Middle East and some African countries. Even in Europe, changes are gradually being seen: industrial activities in the Ruhr area, Wallonia and northeastern France have slowed down and a strong growth has been recorded in Baden - Wurtemberg, Bavaria and the Lyon - Grenoble areas. A high growth rate has been maintained in recent years in Italy, Spain and Portugal. Therefore, a new world trade pattern has emerged which is completely different from the old one. Table I-1 is an illustration of this new multicentred trade pattern.

Table I-1
Network of world merchandise trade by region, 1988
(Billion U.S. dollars)

Destination / *Origin*	*North America*	*Latin America*	*Western Europe*	*Eastern Europe and the USSR*	*Africa*	*Middle East*	*Asia*	*n.e.s.**	*World*
North America	150.0	46.6	99.3	4.9	8.2	11.9	112.5	3.6	437.5
Latin America	54.5	16.4	26.7	8.1	1.8	1.9	12.2	0.5	122.0
Western Europe	113.4	24.1	903.7	38.9	46.5	38.3	91.7	11.3	1 267.8
E.Europe and USSR	3.0	8.6	50.4	128.2	4.1	4.9	18.3	8.9	226.4
Africa	9.8	1.5	39.0	2.8	4.6	0.9	6.0	9.4	73.9
Middle East	11.5	6.4	23.8	3.5	1.2	5.5	31.0	1.2	85.0
Asia	197.4	12.6	124.5	11.9	13.2	20.6	283.1	6.5	669.8
World	540.1	116.1	1 267.3	198.3	80.5	83.9	554.8	41.4	2 882.3

Source: Review of Maritime Transport 1989 (UNCTAD), p.3
** not elsewhere specified*

14. This table shows the origins and destinations of world international trade by region, of which more than 90 per cent is moved by water transport. We can observe from this table that apart from

the emergence of new world trade centres, the intra-region trade accounts for a significant proportion (52 per cent in value).

2. New characteristics of world trade growth

15. The multiplicity of world trade centres is merely one aspect of the changing situation. Until recently, raw materials were shipped from their source to industrial and manufacturing areas to be transformed into finished products. Nowadays, more and more raw materials are being transformed into intermediate and sometimes finished products in the producing country itself before being shipped overseas. For example, big petroleum refining have been built in oil exporting countries. From 1980 to 1989 the crude oil trade decreased by 33 per cent while product oil trade grew by 46 per cent world trade has increased much more rapidly in value than in volume (in fact, the volume of the world trade dropped by 3 per cent from 1980 to 1988). This can be explained by the dramatic increase in the traffic in manufactured goods, especially containerized cargoes. Table I-2 shows this significant growth in containerized cargoes both in terms of value and volume.

Table I-2
World trade growth and container traffic development 1970 - 1988

	World trade volume				*World container trade volume*			
	US$		*Tonnes*		*US$*		*Tonnes*	
Year	*(bn)*	*Index*	*(mn)*	*Index*	*(bn)*	*Index*	*(mn)*	*Index*
1970	*312*	*100*	*2561*	*100*	*86*	*100*	*24*	*100*
1975	*873*	*279*	*3039*	*119*	*298*	*347*	*64*	*269*
1980	*2009*	*643*	*3645*	*142*	*661*	*769*	*128*	*539*
1982	*1856*	*594*	*3259*	*127*	*674*	*785*	*143*	*604*
1984	*1911*	*612*	*3312*	*129*	*780*	*908*	*189*	*784*
1986	*2119*	*679*	*3366*	*131*	*859*	*1000*	*214*	*905*
1988	*2706*	*867*	*3529*	*138*	*1035*	*1203*	*245*	*1020*

Source: "Box prospects reassessed", Port Development International (Dec./1990), p.65.

16. From 1970 to 1988, the value of world trade has multiplied by 8.7 while the volume of world trade volumes has increased only by 1.4 times during the same period. It is expected that this growth pattern will be maintained; which signifies that the average value per ton of cargo transported on the international trade routes will become still more important in the future. The volume of container trade as well its share in world trade is expected to grow. Table I-3 shows the increase in container trade upto the year 2000, estimated by a leading consultant company.

Table I-3
World container trade development 1970 - 2000

Year	*Container trade value**		*Container trade volume***		*Port throughput volumes*
	US$ bn	*% world trade*	*Million TEU*	*Tonnes million*	*Million TEU*
1970	*86*	*26*	*2.1*	*17*	*6.3*
1975	*298*	*34*	*6.1*	*56*	*18.3*
1980	*661*	*33*	*12.8*	*112*	*37.3*
1985	*792*	*41*	*19.3*	*181*	*56.7*
1990	*1051*	*42*	*24.8*	*250*	*77.9*
1995	*1385*	*44*	*32.6*	*314*	*96.5*
2000	*1646*	*46*	*38.8*	*372*	*112.2*

Source: "Box prospects reassessed", Port Development International (Dec. 1990), p.65.
** Forward forecast at constant 1987 $ values*
*** Loaded containers net of domestic and transhipment traffic volume*

3. Internationalization of world production and consumption

17. The development of transport and communication has made the world smaller. Today, as compared to even ten, twenty or thirty years earlier, world transport and communication systems not only cover a much larger part of the globe but are much quicker, cheaper and easier to use. Accessibility to the production process and to consumption sources is now world-wide. People go abroad not only seeking raw materials and finished products but also cheaper and better production factors. The international division of work is seen not merely in different products but also

within the fabrication process of the same product. Consequently, the multi-national production system is extending rapidly (moreover, cargo-movement of semi-finished goods caused by this global production has met with fewer artificial trade barriers than have finished products). The era of semi-isolated national economies is fast fading as enterprises and governments search globally for technical capabilities, cheaper inputs and market access advantages. Decisions about labour, raw materials, plant location, transport distribution system, markets and delivery time are taken on a world-wide basis instead of a local one. In Mexico, for example, some 400,000 people are employed in assembling the products of the Far-East and the U.S. for European and North American markets. A large Swiss transnational company moved its accounts section to India, in 1991. A kitchen appliance offered for sale in the United States in 1989 carried the following indications of its possible origin: "This ...(product) is made to our rigid specifications in the U.S.A., Taiwan, Hongkong, Korea, Spain or wherever lies the best consumer value. The exact country of origin is marked on the article, if possible."

18. Consumption too is moving in the direction of globalization. Starting in developed countries, people are buying all kinds of foreign made consumer goods. Cars, and other high value durable goods are no longer the exclusive imported items they once were. Low value imported products, from basic daily foodstuffs to house hold wares and everyday clothing have entered ordinary family homes even in some developing countries.

19. With easier access to information regarding comparable goods from alternative sources that can satisfy the purchaser's needs, it will become increasingly difficult for producers to isolate markets and serve them on an exclusive basis. Globalized production and consumption will increase competition between substitutes and lead to an ever-greater emphasis on the control and reduction of costs related to the production and transportation procedures.

4. New requirements of the world trade for transport/distribution

20. Maritime transport activities are generated only by international cargo flow. When the pattern of that cargo flow changes, international transport has to adapt to the new requirements that can be summed up in the following four paragraphs.

21. The multiplicity of world trade centres calls for an extensive transport network. A greater variety of transport services should be provided to link the whole world trade complex consisting of big, medium and small centres. A **network expansion** is the first requirement of this new trade.

22. Semi-finished or manufactured cargo in trade requires substantial improvement in both **speed** and **security.** The time factor in transporting high value goods is so important that a significant and increasing proportion of these goods is moved by air.

23. When international trade is involved not only before and after production but during the whole production process, the transport service then assumes a very special role. Besides speed, security and other requirements, the **reliability** of delivery time and the **frequency** of transport services are of great importance. At the same time, a good **information/communication** system is essential.

24. Finally, since the new increase in world trade is often the consequence of improvement in the price of production factors, the **cost** of transport is of paramount importance. What is worth noting is that the cost factor we refer to is not merely for a particular mode of transport, but for the total cost of the **integration** of transport and distribution involved in the movement of goods from the producer to the final user.

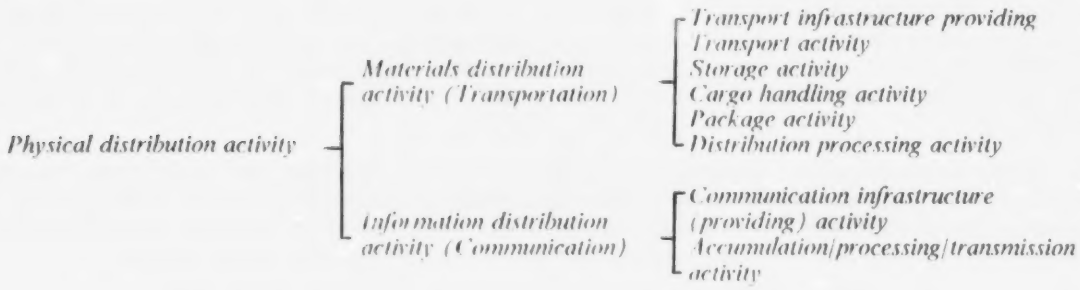
B. Emergence of a world transport system

25. World trade changes its pattern and develops in depth and in dimension. It is clear that if national economies are expected to develop by taking part in today's world trade system, concepts and practices regarding transportation and distribution are bound to change. These new concepts and practices are explained below.

1. Integration of the foreign trade and transport chain

26. This is a new concept under which **the transportation/distribution activities are considered as a sub-system of the whole production system.** In a traditional industrial society the transportation chain of goods from the producer to the final user was normally divided into several parts. Shippers rarely cared about onward transport matters in the receiver's country and receivers paid little attention to the pre-forwarding costs before their goods reached the ship's rail. This is no longer the way people look at their cargo transportation today. It is now the total or integrated transportation chain which matters. From the buying of raw materials at the site of their production to the delivery of products to the warehouse of the receiver, production, transportation, storing, distribution, information are all integrated into one unique network. When arranging cargo movement within the network, only the cost and efficiency of the integrated transport/distribution chain are taken into account. Table I-4 shows the main activities of that chain.

Table I-4
Cargo distribution activities



Source: Based on, H. Yamada, "Strategy of shipping companies for international physical distribution", Japan Maritime Research Institute Report No.39 (Dec. 1990), p.32

2. Intermodalism

27. This production-driven need for an integrated transport chain has led to intermodalism. The major objectives of intermodalism are to increase the speed of cargo distribution and reduce the amount of unproductive capital, whether in inflated inventory levels, inactive rail-cars or vessel delays at ports. Since new trade patterns require quicker, cheaper and safer transport of goods than in the past, the main obstacle was found to be at each transport mode interface which caused delay and increased the cost of the whole transport chain rather than of "a moving part" of that chain. Thanks to containerization, the intermodalism of foreign trade transportation has been possible on a large scale. Shippers entrust door-to-door transport to one multimodal transport operator who is a specialist dealing with different modes of transport and who has an international operating network. The intermodal transport of containers from Yokohama to New York requires just 14 days instead of three weeks by solely waterway. In developing countries the intermodalism is also gaining ground, e.g. the sea/air transport centre in Dubai is of world class and the sea/land transport in Mexico or the trans-Andes land bridge in South America are very promising. Apart form the changes in the legal regime and the terms of shipment, perhaps the biggest change brought about by intermodalism to transport is the emergence of multimodal transport operators (MTO) and their increasing role in the choice and control of the transport chain. This has affected the activities of transporters, port operators, warehousing operators etc. This subject will be analysed further in the section on inter-port competition.

3. Logistics of the transportation chain

28. The concept of logistics is now widely accepted. Logistics is a procedure of optimizing all activities that ensures the delivery of cargo through a transport chain from one end to the other. In order to optimize the whole system, the logistic approach is to decide when, where and how actions should be taken. One of the best illustrations of this is the well known "Just-In-Time" delivery -- a logistic method based on precisely managed and controlled transport and information systems which aims to eliminate excess stock in the production process. Just-In-Time logistics is not only vital to an automobile assembly line, but also to farmers because they want to minimize the cost of holding inventory. It is especially true of the fertilizer business. A leading American

fertilizer producer has changed his distribution system by customer demand for a more precisely timed delivery of bulk fertilizers. In the port of Newcastle, Australia, a just-in-time coal export chain has managed to maintain small stocks, thereby reducing potential pollution, yet at the same time providing a rapid response to changes in demand levels.[2]

4. Trans-shipment

29. As trade requires quicker and cheaper cargo movements, the big trans-oceanic shipping lines, as described in a recent trans-shipment study of UNCTAD[3] have taken advantage of the flexibility and the scope for modulation allowed by the container technique to reorganize and restructure shipping services to regions of heavy traffic. The traditional port-to-port routes have been replaced by veritable grid networks assembled around trans-shipment ports where different trade routes intersect and interconnect. The shipping lines have thus been able to connect trading points and, by increasing the size of their ships and making full use of them, have achieved economies of scale in deep sea hauls through reduced unit costs and transit time. By organizing - often alone, or sometimes with other shipping lines - secondary transport networks served by purpose-designed feeder ships, they have increased the number of ports served from a single port of shipment. By extending their operations upstream and downstream, they have achieved sweeping economies of scale and gained other advantages that have enabled them to offer shippers a made-to-measure service.

30. Trans-shipment is also expanding in some developing countries, especially when the cargo volumes to and from these countries are not big enough to justify direct vessel calls or when the location of these countries' ports are remote from the main maritime routes or the port facilities in these countries are not suitable for main line vessels to quickly load and discharge.

5. Specialization and economies of scale of ocean-going vessels

31. Specialization of international cargo transport equipment has taken place in inland transport such as the block train or as in some countries double-stack train for container transport or in sea transport by using specialized vessels. Today, the multipurpose conventional general cargo vessels are restricted to a limited category of cargoes and to a limited number of trade routes. Most of the world's trade is handled by specialized vessels. Liquid/dry bulk carriers and full container vessels are two major specialities while ro/ro ships, car carriers, log carrier, fruit carriers, heavy lift carrier etc belong to a third category.

32. Together with the specialization of ships, the economies of scale led to an increase in the size of vessels. Let us take the example of crude oil transport. In March 1991, from the Persian Gulf to Japan the rate structure for various ship sizes is shown in the following table.

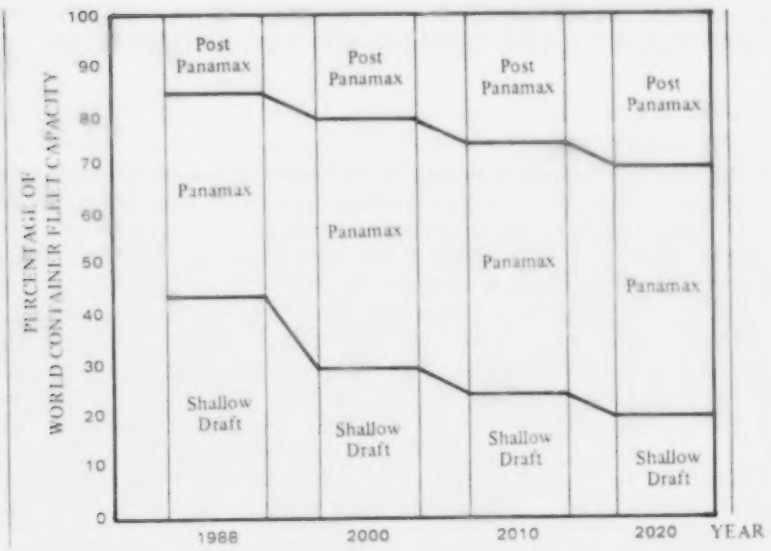
Table I-5

Quantity of cargo (t) (or ship size)	*Rate (worldscale)*	*Index*
50,000	*215.0*	*100.0*
70,000	*190.0*	*88.4*
150,000	*140.0*	*65.1*
255,000	*85.0*	*39.5*

Source: "Asian Fixtures", Maritime Asia (May 1991), p.32

In the dry bulker sector, we have a similar rate structure. The majority of big container vessel operators are now replacing their fleet with the fourth generation trans-oceanic containerships, say post-panamax with a capacity of more than 3,500 TEU. The economic advantages to be gained by a 39.6 meter-wide post-panamax ship as compared with a panamax are: a reduction of approximately 43 per cent in daily consumption per TEU and 23 per cent in construction costs per TEU transported.[4] Table I-6 is a forecast of the world container ship fleet for the next thirty years.

Table I-6
Forecast of the world container ship fleet structure (1988-2000)



The number of shallow draft vessels in container trades is forecast to decline sharply, with Panamax tonnage, requiring 36-40ft channel depths and post-Panamax ships

Source: V.Champion, "Shipping Example", Cargo System (Jan. 1991), p.41

6. Customer-oriented diversity and flexibility

33. Customer orientation is a vital concept for the formation and improvement of the world transport system. If we say that world trade is production and consumption driven, the international transport/distribution is then trade driven and has been in a "buyer's market" with fierce competition. To be as close as possible to one's customers is the key to success.

34. Diversity and flexibility are the two essential characteristics that customers require. To fully satisfy all customers' needs, the transport service should be tailor-made with particular service patterns to meet each individual customer's needs. This can be described in three words: first, **awareness** - which means that one should be constantly aware of the customers' needs; secondly, **willingness** - one should be willing to listen to the customers and to take the trouble of making the necessary changes; thirdly,**speed** - when changes are called for, make them quickly.

Chapter II

NEW ROLE OF SEAPORTS IN INTERNATIONAL TRANSPORT, FOREIGN TRADE AND NATIONAL ECONOMIES

35. The reason for discussing the development of trade and transport before discussing the actual subject of ports is not only because trade and transport generate port activities, but also because today seaports are an integral part of the international transport chain and world trade. In fact the role of ports was not as important to national economies when the development of the latter was mainly dependent on national markets.It was during the sixties and early seventies that half a dozen developing coutries, particularly in the Asian Pacific region, successfully transformed themselves, through foreign trade, into what we call today "newly industrialized economies". Globalization of national ecnomies has become almost non-reversible in industrilized countries and many governments in developing countries are shifting from investment-led or import-substitution to export-oriented macro-economic policies to stimulate commercial activities. The emphasis on export-promotion has generated a substantial increase in external trade volumes in some regions and put into sharp relief the strategic importance of ports and their pivotal role in the achievement of national economic goals. In this chapter, we shall analyse the new role of ports under these changed economic conditions.

A. From administration to commercialization - a changing attitude

36. In the past, the normal pattern was for ports to be managed by governments or government agencies. In many countries, especially in developing countries, ports have traditionally been managed following the general principles of public administration - profit-making has not been the governing consideration.

37. This was not without good reason. Most ports and their facilities in the developing world are public assets (although port privatization is taking place in some countries). Being usually considered as a mere interface between a natural captive hinterland and the sea, most of the ports are not required to act as profit making institutions but they have to satisfy numerous objectives including social and political ones, such as national safety, contribution to the state budget or local employment. In the past, port competition either did not exist or existed only on a small scale and ports were enjoying a special quasi-monopoly position. In countries where the national economy was totally planned, the demand (cargo throughput) for port services was determined through administrative channels rather than through the free market. Consequently, ports were looked upon as administrative entities instead of commercial bodies and this was reflected in many aspects of port organisation and management.

38. Over the last thirty years, the environment in which ports are operated has greatly changed. The old-fashioned attitude of being politically and administratively regulated has made the port incapable of adapting itself to increasing port competition and satisfying the needs of foreign trade and national economy. Today the commercial function and character of ports are being fully recognized. sorts should be considered first and foremost as commercial undertakings like any other industry. Since world trade and transport are part of a highly competitive market, all ports are, without exception, in the front line of the same international competition, even if the direct inter-port competition in some countries is not apparently felt. To survive and develop in such circumstances, ports need to be given more freedom and responsibility based on commercial principles.

39. There are various ways of changing from an administrative viewpoint to a commercial one. Privatization is one, corporatization (adopting a corporate structure) is another. As an illustration of the latter, ports in New Zealand have some note-worthy experiences.[5] In the mid 1980s the New Zealand government began to realize that its Harbours Act, under which ports were managed by Harbour Boards had to be abandoned, for it constrained the Harbour Boards from acting as commercial operators, restricted competition and failed to allow ports to have clear and measurable accountability and performance. In 1988 the Port Companies Act was passed to improve the

efficiency and performance of the ports. As a result, 13 port companies were formed carrying out port-related commercial activities to control their ownership in the country's 14 main ports. Although ports are still state property, this appropriate measure of port corporatization, together with a port labour reform act, have led to considerable improvement in productivity. In 1990 the average ship turnaround time for all the main ports in New Zealand was reduced by more than 50 per cent and waterfront gang size reduced by more than 40 per cent as compared with the same indicators for 1989.[6]

40. Ports are not only the interface locations for cargo between land and sea transport, but they also provide opportunities for the development of entrepot trade and free ports/ free trade zones. The trend towards commercialisation has in many cases enabled the port organisations to widen the range of their activities.

41. The same process of commercialisation has also allowed ports and port organisations to place a higher priority on achieving financial objectives. At first sight, an obvious measure to achieve such a result would be to increase port charges, but economic, commercial and other factors have made inter-port competition far stronger than was formerly the case. And even where monopolistic situations exist, the governments of the countries concerned may not necessarily permit ports to use their monopoly position to increase their charges. Another approach is for the ports to seek to improve their financial performance by reducing their costs. There have in fact been considerable reductions in the costs of ports in some countries, e.g. where deregulation of employment rules in the port industry has led to substantial economies in manning and labour costs. However, such changes tend to be of a non-recurring type and may not be effective in many countries because of the lack of alternative employment opportunities for the port workers concerned. Therefore, additional cargo, additional vessel calls and the improvement in the utilisation of port facilities, remain the primary means of improving the financial performance of ports.

B. An active and main actor in the world trade and transport system

42. When international economies, trade and transport were not integrated as a single system, production and trade were treated as two separate elements and transport was segmented in different stages. Ports in such a situation just carried out their traditional functions -- loading/discharging to and from vessels, independent of and sometimes indifferent to what was going on in production, trade or transport. As was described in the last chapter, this situation is changing rapidly. Ports are now the catalysts that initiate a wide range of commercial endeavour in surrounding areas and adjacent hinterlands to stimulate their economy and trade.

43. To identify the new role of ports, we need to trace and analyse the foreign trade and transport chain. This chain certainly does not start with the port, nor even with the factory that produces finished products. It actually begins from the production site of the raw material, or the intermediate or semi-finished products and goes on until the product reaches the final user in a foreign country. It is not merely a simple transport chain because the goods, along this chain, are transformed from raw or intermediate materials into finished products. To rationalize all the activities involved in this chain and to minimize the overall cost, one needs a logistic approach. Therefore for any given product the question is to decide when and where these activities should be carried out. Four principles are generaly applied to this question.

- They should be carried out where and whenever the cheapest acceptable production factors can be found;
- Where and whenever minimum 'dead time' is needed;
- Where and whenever minimum transport is required;
- Where and whenever the greatest concentration of products is achieved.

44. Here we can appreciate that ports, as "nodal points" on the transport chain, have a great role to play. We can illustrate such a point through the following fictitious example: In a country product X was assembled at inland point A, with parts coming from a wide range of sites: B, C, D, and E throughout the region. The product once assembled was transported from A to port P for export as shown in figure II-1.

Figure II-1

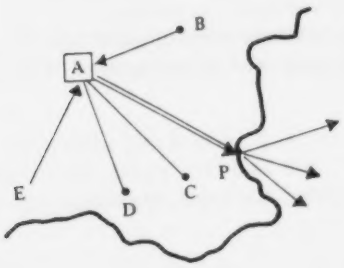
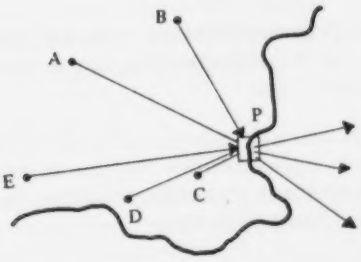


Figure II-2



The port then initiated a calculation of total ton/km transported to the exporter and invited him to move the assembly point to the port area where the necessary conditions will be provided for by the port. This process is shown in figure II-2. Result: important reduction of inland transport cost before shipment (including time saved); this in turn leads to a lower FOB price of the product; which in turn makes it possible to increase export. Obviously, this is an additional traffic for the port. The shifting of the assembly point or other industrial cargo processing activities to the port area is certainly not recommended everywhere, since in certain countries land and other resources are too expensive in the port area for industrial units to be set up. However, what is important is the logistic approach which not only takes into account the minimum transport cost and dead time, but also ensures the cheapest acceptable production cost. In other cases, the same logistics approach may well indicate that industrial units be moved from the port area to inland territories where productive resources (such as land) are cheaper, even though transport cost may be higher. This is the actual situation in some industrialised countries (e.g. in North America). Each year China imports a large quantity of fertilizers from Europe, but farmers and distributors don't like bulk fertilizers which are difficult to use, to distribute and to store. On the other hand, bagged fertilizers are much more expensive to buy, to transport and to handle in ports. In order to solve this problem, ports in China installed fertilizer-bagging equipment alongside the quay and organized a bagging work group. Now the imported fertilizers arrive cheaply in bulk at the ports and then leave the ports in bags with added value and to the satisfaction of the peasants. This kind of logistic approach of the ports benefits both port users and the port itself. German car maker BMW is going to set up a storage, packing and distribution center of spare parts in Antwerp for European and North American markets. The spare parts are made overseas and will be shipped to Antwerp in containers, then packed, stored and distributed all over Europe including Germany and North America. This centre will handle about 250,000 spare parts per year.[7] The choice of location for such a centre is a logistic decision since production is located in different places and so is consumption.

45. From a logistic viewpoint, three main reasons, among others, give ports a strategic position in today's international production trade and transport system and allow ports to have a more dynamic role to play.

- First, ports are the starting and ending points for maritime transport. Maritime transport, containerized or in bulk, is always the mode of transport which moves the biggest quantity of cargo. Consequetly ports, along the whole transport chain, always have the highest concentration of cargo. This cargo concentration is the best way of achieving economies of scale when additional industrial, commercial, technical activities are required.
- If the biggest difference in production factors exists between continents (or among countries separated by relatively great geographical distances, so that maritime transport is normally needed for cargo movement), ports are the logical places where the contributions of different factors of production can be combined in an advantageous manner. That is why countries, iron/steel factories are built in the port area using imported raw materials. Export industries installed next door use this iron and steel products and turn out cars and machinery. These are exported from the port area with a big cost advantage in the international market.
- Thirdly, for world trade, ports remain the biggest and most important transport mode interfaces where shippers, freight forwarders, shipowners, ship agents, cargo distributors, cargo transformation companies, packing companies, land transport operators, customs offices, cargo inspectors, banks, insurance companies and other relevant organisation are located. Ports are therefore important infomation centres.

46. As described above, ports can be the motor or stimulator of foreign trade and local/national economy. However, not all ports are playing this role or they may not be aware of the opportunities and risks offered by the changing world economy and their potential role in it.

C. Port development - from a transport centre to a logistic platform

47. Ports. Today ports can be classified into three different categories or generations. This categorization is not based on the size or the geographical location of the port, nor on the public or private nature of its organisation. It is based on three criteria: (a) port development policy, strategy and attitude; (b) the scope and extension of port activities, especially in the area of information and (c) the integration of port activities and organization.

1. The first generation port

48. Port development policy, strategy and attitude are fundamental points when distinguishing a new generation port from an old one. Until the 1960's, ports were merely the interface locations for cargo between land and sea transport. Tradition and habits of those years have conditioned the thinking of many people involved in port activities. Apart from cargo loading/discharging and storing, other activities were not usually being carried out in the port area. Today, this way of thinking still exists and limits the conception of the port to a fixed and limited role, which in turn conditions the decision makers at government, municipality or enterprise levels to favour conservative or passive policies. Consequently governments may restrict the activities of the ports to a minimum, such as loading/discharging, storage and some navigational services. Investments are concentrated on waterfront infrastructures without any awareness of what is happening to the vessels and cargo outside that waterfront area. Such attitudes and restricted scope of activities have led the port towards organizational isolation. The port organization isolation has three major aspects.

49. First, the port is isolated from the transport and trade activities. Often in a monopolistic situation, these ports are rarely concerned about the port users' needs. Participation of trade/transport interests in port decision-making process is limited and port marketing promotion is rarely considered. Usually these ports have their own systems of information, documentation and statistics and have no regard for their compatibility with port users' systems.

50. Secondly, the isolation of port organization can be found in its relationship with the municipality that surrounds the port. The port considers itself as an 'independent kingdom', so does the municipality. Cooperation is rarely sought and each one's development plan is carried out separately. Ports, by their very nature, are strong compared to other local units of economic activities and are often the only organization capable of being independent entities.

51. Thirdly, in a first generation port, the different port activities or port companies are isolated from each other. This means that at the commercial level the different port activities never act together in unison, but make their decisions independently of how other organizations in the same port will react. This was nevertheless quite natural at the time of pre-containerisation, since the commercial relationship between different activities of the port was casual. Productivity was not high and cargo movement was slow. Users were more familiar with individual sectors of different port services, rather than with the port in its entirety.

52. It is however worth noting that the notion of the first generation port applies particularly to general cargo ports and some bulk cargo ports, while some other bulk cargo ports especially those located near raw material producing sites have always concentrated on intermodal sransfer, e.g. loading of cargo with pipeline or conveyor belt onto vessels in Saudi Arabian or from the Australian hinterland to the ports.

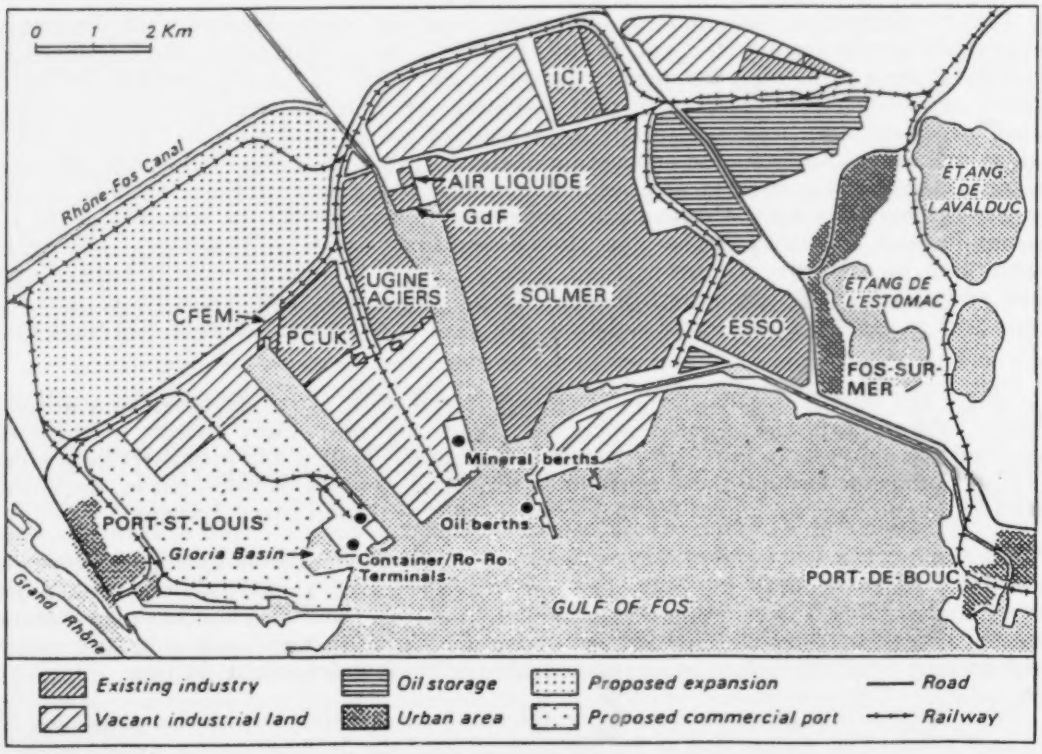
2. The second generation ports

53. In this category of ports, governments, port authorities and those who provide port services have a broader understanding of the functions of seaports. The port is regarded as a transport, industrial and commercial service centre. Thus ports are allowed to undertake and offer industrial or commercial services to their users, which are not directly connected to the traditional loading/discharging activity. Based on a broader conception and management attitude, port policies, legislation and development strategies are made.

54. As a result, the scope of port activities is extended to commercial or any other relevant ser-

vice such as cargo packing, marking and industrial services such as cargo transformation. Industrial facilities are built up within the port area. Therefore, the port develops and expands towards its hinterland with industries such as iron and steel, heavy metallurgy, refineries and basic petrochemicals, aluminium, paper pulp making, fertilizers, sugar and starch, flour milling and various agro-food activities. The second generation ports are not only transport centres but also industrial and commercial centres. They emerged around the sixties with an increase in the quantity of raw materials imported into industrialized countries. This was accompanied by the use of large tankers and dry bulk carriers in maritime transport. These ports are commonly called 'Industrial Ports'. Figure II-3 shows an example viz. the port-industrial complex of Fos, France, in the late 70's and early 80's.

Figure II-3 The port and industrial zone of Fos



Source: J.N. Tuppen, "The Port Industrial Complex of Fos: A Regional Growth Centre?" Seaport System and Spacial Change, edited by B.S. Hoyle and D. Hilling, 1984, p.307.

55. Organization within a second generation port is different from that of a first generation one. Second generation ports enjoy a closer relationship with transport and trade partners who have built their cargo transformation facilities in the port area. However, only the big shippers or shipowners benefit from that activity. The number of privileged port users is small and their relationship with the port organization is quite simple and direct. The second generation ports also have a closer relationship with the municipality since they are more dependent on the surronding city as regards land, energy, water and manpower supply as well as the land transport connection systems. Inside the port organization, different activities are become more integrated in keeping with the increase in quantity and the quick turn-over of cargo throughout the port. However the integration of second generation ports is often spontaneous rather than organized.

3. The third generation ports

56. These ports emerged in the 1980's, principally due to world-wide large scale containerization and intermodalism combined with the growing requirements of the international trade as described in chapter I.

(a) Port development policy, strategy and attitude

57. The policy maker, manager and operators of the third generation port have a very different understanding and attitude towards the running and development of their ports. They see their port as a dynamic node in the complex - international production/distribution network. Based on this thinking, people have changed their management attitude from the rather passive offer of facilities and services to that of active concern and participation in the overall international trade process. For centuries poeple in ports used to wait for vessels and cargo to come in, believing that "the cargo will follow the vessels". But now they have realized that the cargo flows are much more volatile than in the past. Efforts have been made to gain and to keep them. These efforts necessarily are directed to promote trade and transport activities which, in turn, generate new revenue-making and value-adding business. As a result of such efforts, the ports have been turning into integrated transport centres and logistic platforms for international trade.

58. Activities and services in such third generation ports are specialised, variable and integrated. They are sub-divided into four major different categories which can be explained as follows.

(b) Traditional port services

59. This does not mean that with the advent of third generation ports, the activities of the first and second generation ports will cease to exist. Actually, the traditional port services such as cargo handling is and will remain the backbone of port activities. The differences is that in a third generation port, together with conventional services, logistic and total distribution services are being provided to port users. Moreover, in a third generation port all conventional services are carried out by modern equipment and management know-how controlled by electronic information technology. Cargo handling and storing are carried out with information distribution. Port infrastructure is planned with equal consideration to "port infostructure". (information processing facilities) Consequently in a third generation port, navigation services, cargo handling, storage and other traditional port services involve modern port organization and management and are highly efficient.

(c) Industrial/environmental services

60. There are two kinds of industrial services in a third generation port. One is ship/vehicle related industrial/technical services, such as ship repairing industries and other engineering and technical services. These services are of great importance for a modern port in the marketing sense, to ensure high productivity and to build a reputation for reducing technical and commercial risks to the port user's equipment. The second kind of industrial service is cargo-related. the port's aim in providing cargo-related industries or allowing others to establish such industries within the port area is to generate more cargo throughput and more value added for the port. A survey published in Canada in 1990 reveals that the port of Toronto and its surrounding industries contribute economic benefits in excess of one billion Canadian dollars annually.[8] In some countries, export processing zones have been established in or near the port area with attractive commercial conditions. Raw and intermediate materials are imported through the port to the zone and finished manufacturing products such as clothing, textiles, footware, household electrical appliances and many others are packed into containers at the port area to be shipped to the world markets via the port once again. The industrial service contributes to the value added. For instance, Amsterdam has for a long time included adding value to goods as part of its activities. Thus high grade coal (ash content of four per cent) shipped from Kalimantan mine in Indonesia, is processed at Amstterdam's facility of Rietlanden to reduce the ash content to one percent. Similarly in Ghent, Belgium, the coal terminal specialises in processing solid fuel, through dry screening, wet screening, washing and drying. The main aim is to add value to the primary product.[9]

61. Modern ports should be equipped with necessary facilities for environmental protection. Ships and cargoes have long been sources of pollution in the port area (such as ship's wastes and refuse and dangerous cargoes), and with industrial activities in port area, environmental problems are becoming one of the major concerns of port managers. In the United States, several major port development plans cannot be implemented pending approval of official authorities on their environmental impact.

(d) Adminstrative/commercial services

62. After World War II, international trade expanded rapidly, accompanied unfortunately, by administrative procedures which became increasingly complex, sometimes turning into real trade

barriers. These adminitrative procedures are highly concentrated in ports. Nowadays, the quick and high volume merchandise movement among different countries requires not only that the port be efficient in its management, but also in its procedures, administrative regulations and services. This is one of the characterestics of a third generation port.

63. Port administrative efficiency falls mainly into two groups: (a) documentation and regulation and (b) the working schedule. Port documentation, if it is to be efficient, should be simple, compatible with that of trade and transport and computerized. As one manager of the port of Singapore said 'if one were to trace the cause of congestion in a port, very often it can be found to be a slow information flow. For instance, if there is congestion in the container yard, it is likely that the documentation process for releasing containers will take too long, there by limiting the out-flow of containers from the yard.'[10] Very high port documentation productivity can be obtained through the EDI (Electronic Data Interchange) system. With this system, in the port of Singapore, all documentation work for an entering, registering or departing of containers can be done in 30 seconds at the port gate.[11] (EDI discussed again later, when discussing logistic services)

64. Another aspect of administrative efficiency is the port working schedule. Modern ports can no longer afford to keep the old traditions of working only on "weather working days" and only 6 hours a day and 5 days a week. Today, ports are not only equipped with very expensive infrastructure and facilities but the vessels and merchandise they service are of extremely high value. Even maritime transport is now calculated by the hour. The time spent at ports costs thousands of dollars per hour to cargo owners, ship owners, as well as to the ports themselves. In one European port, gantry cranes can move as many as 25 containers per hour but are restricted to around 10-15 per hour, because of customs requirements.[12] On the other hand, in another European port, an American shipper's distribution centre in the port is considered a 'fictitious warehouse under administrative control', where direct physical customs control is replaced by administrative controls: cargo can be handled, received, packed and shipped 24 hours a day and seven days a week.[13] Modern ports providing 24-hour service depend largely on the common efforts of the whole port community including obviously port administration.[14]

65. Along with efficient administration, a third generation port may provide administrative services. This is especially the case for a free zone status. For a transshipment port the free zone status is one of the essential conditions. This is also true for a cargo distribution centre. Export manufacturing/processing activities should be included in the free zone, which can greatly increase administration efficiency both for importing raw materials and exporting finished products.

66. Commercial service is in fact one of the traditional activities of some ports. In the past, fish and merchandise were traded and distributed in main fishing ports. Recently, these commercial activities have been reinforced at the port area mainly because of logistic concerns. A third generation port can provide or make available all the necessary commercial requirements for direct and indirect port users. In many modern ports, banks, insurance companies, legal services and communication services are highly developed. In Rotterdam and Antwerp some business parks have been created in which there are trade and distribution centres for individual foreign countries.[15] In the Caribbean, the port of Guadeloupe has recently established an 'Foreign trade zone', which includes a 20-hectare free trade warehousing zone (upon completion, capable of providing 75 000M2 of rented warehousing to trading and industrial companies); a 25-hectare industrial park where tax-free warehousing is provided and a world trade centre consisting of 2000 M2 of office space, exhibition facilities, conference equipment, worldwide communication possiblities, language consultants, information and other services.[16]

(c) Logistic/distribution services

67. At a third generation port, all logistic characteristics are incorporated into its conventional, industrial, environmental, administrative and commercial activities. However, one new and typically logistic activity of a port today is its distribution service. Distribution is different from storage in three aspects.

- Storage is viewed by its users as a segmented function, isolated from transportation, production or consumption activities. Distribution, on the contrary, is considered by its users as a logistic function in the whole transport chain and is indispensible.
- In a port there are two kinds of flows: cargo and information. Storage is normally concerned with the cargo flow and is independent of the information flow. Storage workers, for instance, need not be concerned with the origin or destination of the cargo, its future use or the mode

of its transport. For distribution, all these bits of information are as important as the cargo itself. Cargo and information are two inseparable elements and both are to be distributed.

- Storage is necessary when production, transportation and consumption do not keep pace with each other. Storage is normally not a value-adding activity; wherever possible, storage should be reduced to the minimum. That is the reason why "Just-In-Time" delivery is widely welcome. On the other hand, distribution activity, including storage, is a value-adding activity without which the transport chain cannot be complete and cargo cannot reach the customers as it should.

68. It is essential to distinguish between distribution and storage to understand what port users really need. As explained by the logistics manager of a distribution company in the port of Rotterdam: "Demand from the Far East and the United States for central distribution facilities has increased, ... if I were just to offer warehouse accommodation, I wouldn't have any clients. What they require is an integrated logistic service."[17]

69. Containerization and intermodal transport have increasingly transformed the port into a kind of "passing corridor" where goods just pass through without creating any value added. Port people have found that the traditional facility and concept of 'warehousing' is meaningless for most containerized cargo. Yet, the major industrial and commercially developed countries are reducing the number of distribution and storage centres, requiring improved services, creating logistic operations and relying more heavily on specialised companies for their cargo distribution. Therefore, while some old activities are losing ground, new ones are emerging. For all ports, this is a challenge and a big commercial opportunity. Nowadays, major ports in North America, western Europe and in some Asian countries are making enormous efforts towards the development of this new business. Ports in developing countries should take this matter seriously and prepare themselves without delay for promoting commercial functions and becoming distribution service centre.

70. A port distribution centre can be used for the import and exportof cargoes. Let us take import distribution in analysing what a port distribution centre should be. Normally ports only make available all necessary distribution facilities then leave the distribution activity to specialized companies (exept for some operating ports where cargo distribution is carried out by port authorities). The main facilities and conditions are discussed below.

-- Warehouses

71. Warehousing is still one of the most important functions of physical distribution. Ports should provide sufficient storage space and warehouses should be located at the proximity of the port terminals. The layout and equipment of the warehouses should be well adapted to the high requirement standards of port users, such as air-conditioned storage, high-rack storage, fully computerized monitoring systems. For hazardous cargo, the warehouse should have liquid-proof floors, ventilation facilities, fire-resistant walls and a sprinkler system. The warehouses are to be equipped with modern technology. Some of them have even introduced the computerized rack storage system. In most ports, warehouse building has to face three main problems: the availability of land and road/rail transport connections; relatively large capital investment and delay in construction. While the first problem requires long term planning and close cooperation between the city and the port that will be discussed later on, the recent experience of Tilbury, (United Kingdom) illustrates how the other difficulties have been tackled. In March 1991, the port of Tilbury completed the building of a new storage capacity of 8280 M2. The project provides high capacity storage at low cost and was completed in just over four months from start to finish. The building structure itself basically comprises a galvanished steel frame covered with a PVC-coated polyester fabric. This is, reported, to be UV-stabilised, long-lasting and is tested for tensile strength and frame retardency. The new building costs 40 per cent less than a conventional one and it can be moved or even sold with very little difficulty.[18] This is an example of efforts made in the right direction. However, a port should exercise caution when following another's example. In a port with distribution servoces, specialised warehousing should be provided or planned when special traffic (fruit, steel products, car and spareparts, chemical products etc) tends to become important. One should also foresee the possible disappearance of this or any other traffic. When the operators do not have the capacity to invest, the port authority and the entire port community should combine their efforts and mobilize the necessary resources in order to ensure that their port remains on the front line of the market.

-- Water/air/land transport connection

72. In developing countries, as well as in many other countries, the inefficiency and inadequacy of inland transport infrastructure is often the biggest barrier for ports to meet the requirements of trade and become distribution centres. Since the transport infrastructure is normally undertaken by municipalities or governments, ports should present their distribution centre plans to these authorities and work with them closely if the inland transport infrastructure is to be improved. The location of distribution centres should be within easy access of the inland transport networks, which are vitally important for the good running of the port distribution centre. This is highlighted by a recent survey on "Ports' perception towards future", conducted in January 1991 by the International Association of Ports and Harbours. Table II-1 is one of the results of the survey and shows that ports regard as most important (more than one hundred ports in 30 countries) in relation to their municipal authorities. As we see that road access to ports ranks at the top of ports' concerns.

Table II-1
Priority of items

Items	*Priority*					
	No.1	*No.2*	*No.3*	*No.4*	*No.5*	*Tol.*
Road access to port	20	22	18	11	4	75
Warehouse/distribution facilities	21	22	8	17	4	72
Urban & civic development	16	13	11	16	9	65
Intermodal terminals	15	14	14	6	8	57
Rail access to port	8	11	8	8	4	39
Cruise industry	2	3	11	6	13	35
Office space development	4	3	6	6	12	31
Airport	2	2	4	4	4	16
Teleport	0	0	6	4	4	14

Source: The International Association of Ports and Harbors "Report on the Survey on Port's Perceptions Towards Future", (May 1991), p.8.

-- Logistics and EDI (Electronic Data Interchange)

73. One of the most important features of a third generation port, being a part of the transport chain, is its capacity for information processing and distribution. In the past, the quality of a port was directly linked to the quality of its infrastructure and services. Today an additional factor is needed: the quality of information or, in other words, the "infostructure". A good information and data flow is a pre-requisite for rapid and efficient cargo flows and thus the competitiveness of the port. Actually a third generation port is an information centre. First of all, constant information is required within the port organization for the management of various operational, technical or administrative activities. All kinds of information about cargo and vessels are required by the port authority, Customs office, insurance company, banks, shippers, consignees, shipowners, freight forwarders etc. From the commercial side, there is a normal requirement to know precisely where the cargo is and what is the situation of stocks of cargo in storage. In a modern container port for example, the logistics centre should provide:

- Information as to the containers tp be doscjarged. With electronic data interchange, the information is available several days before vessel arrival. Using information technology, current status is available for imports within minutes of discharge. In this way, information is available as to which containers have been discharged, their location and when cargo is required to be delivered.
- Information on what containers are located in the container yard, and on their length of stay.
- Information on what containers have been booked to move where, when, and by what transport.
- Information as to safe working loads of quay cranes, maximum rated capacity, additional lifting equipment for uncontainerized and out-of-gauge cargoes etc.; information as to average handling rates etc.
- Information as to yard handling and storage capacity, including information as to the extent of delay to inland transport. Landside performance statistics will show which days or periods are good or bad: so encouraging scheduling so as to avoid bad days, whenever possible.
- Information with regard to the availability and cost of container handling equipment;

also information with regard to the cab/traction units themselves (very important for fuel economy). It is perhaps worth noting that over 60 per cent of short-sea box movement costs occur on inland transport movements alone.

- Information on inland road and railway transport and on feeder service availability (including costs), as relevant.
- Information relating to the logistics of re-positioning of empty containers for subsequent vessels. that is necessary because of imbalances in the numbers of containers discharged and loaded. It is important not only for 'general' boxes, but more specifically for 'specials', e.g. insulated, reefer boxes, tanktainers etc. It is worth bearing in mind that hire costs are very high for 'specials', e.g. between Japan and the United Kingdom.[19]

74. The logistics centre will also maintain typical performance figures relating to certain classes of vessel. Information is also likely to be available if relevant, as to the length of possible delay, e.g. in some European ports customs and documentation delays connected with clearing the requirements of the European community common agricultural policy.

75. The logistics centre will also maintain information with regard to the availability of repair facilities for containers. Information will also be available on physical and related matters as relevant, e.g. with regard to:

- The existence of locks and tidal delays
- Location of CFS and ICD facilities, including cold storage, warehousing and distribution centres for both FCL and LCL cargoes.
- Local labour rules/working practices etc.
- Availability/cost of pilotage, towage etc., and of other port facilities, e.g. use of lay-by berth, use of floating cranes for heavy lifts etc.

Some supplementary information services are also to be provided by the port:

- Provision of information for shipowners/shipping agents, or for shippers, as where relevant, regarding shipping services, with details of agents, contact addresses etc.; also customs procedures and formalities, port health etc; potentially available traffic; transport costs between the port and relevant inland cargo origins or destinations; port facilities and costs; details of stevedoring companies (there may be a choice at a port), and their tariffs.
- Provision of contacts for port users: in the country in which the port is located, e.g. in companies which may provide traffic; in foreign countries, in relevant ministries, port authorities and exporting and importing companies.
- Involvement in the provision of through-transport services
- Carrying out marketing work for the port in other countries, possibly jointly, e.g. with managements of terminals within the port.

76. What must be emphasised is that storing all this information in a computer does not suffice. Computerization is not EDI. EDI is a system whereby electronic information is interchanged between one computer and another using a communication package which has the ability to share and exchange information among port operators, administration and port users. In the port of Singapore for example, the EDI system links more than 600 important port users and 65 per cent of the transport documents are handled by this system.[20] A computerized system must be available to process the information.

-- Value-adding activities

77. The term "added value" signifies value newly added or created in the productive process of an enterprise. Loading and discharging are certainly value-adding activities, so are the industrial services of a port as noted earlier. In a distribution centre, added value can take different forms such as cargo consolidation and deconsolidation - providing up-to-date information on the inventory and cargo movements; stuffing/unstuffing containers; crating; palletizing; shrink-wrapping; labelling; weighing; repacking etc. In Singapore in 1990, such commercial activities generated in Singapore in 1990 about US$ 63 million or 12 per cent of the port's total revenue. This 12 per cent is significant because without this the remaining 88 per cent of the revenue would be unfavorably affected.[21] The computer-maker Amstrad had serious problems in rapidly switching the stock that could not be sold in one country, to another country because of language specificity of the software and so on. One of the distribution centres in the port of Rotterdam solved Amstrad's problem for the European market by putting together the right combination of hardware and software

components for each destination. From the distribution centre, one can keep tabs on the market, see whether the predictions are accurate and react quickly, ensuring that the stocks do not pile up. This is the value that a distribution centre adds to the product. Also in Rotterdam, together with other municipal departments and private enterprise, the port management has developed a plan to concentrate activities in the field of trans-shipment, storage, processing, distribution and transport of fresh fruit, vegetables, deep-frozen food products and fruit juices in the Vierhaven area. Table II-2 shows the added value of trans-shipment to different merchandises in Rotterdam in 1989.

Table II-2
Added value in the port of Rotterdam for various kinds of cargo

	1988			1989		
	tons m	gav* /ton Dfl	gav* 1000 Dfl	tons m	gav* /ton Dfl	gav* 1000 Dfl
Grain/fodder	21,52	7,40	159,25	20,18	7,40	149,33
Ore	42,56	2,40	102,14	45,02	2,40	108,05
Coal	16,25	3,00	48,75	16,95	3,00	50,85
Other bulk	21,82	4,00	87,28	24,35	4,00	97,40
Crude oil	85,59	2,00	171,18	89,05	2,00	178,10
Mineral oil	31,56	11,60	366,10	37,30	11,60	432,68
Containers	34,53	10,10	348,10	38,40	10,10	387,84
General cargo	10,17	30,00	305,10	11,20	30,00	336,00
Goods in vehicles	7,01	3,60	25,24	7,59	3,60	27,32
Total (ex Lash)	271,01		1613,79	290,04		1767,57

Source: Port of Rotterdam Annual Report, (1989), p.10.
** gav: gross added value*

-- Simplified customs regulations

78. Excessive customs regulations can become a very big obstacle to the physical distribution of cargoes. In a third generation port, the customs should be well organized, i.e. modern techniques should be used so that it would be unnecessary to check each individual consignment at the cost of the port productivity. In the port of Le Havre, the computer system utilized by the port community is connected with the computer systems of the customs. When goods are imported, the information is fed, inter-changed and processed. Only a very small percentage of the consignments have actually to be visited. Procedures may require that in a port distribution centre, duty and excise taxes are only paid on final delivery. Goods being re-exported as well as goods entering the country should pay these at the last stage. In Rotterdam, licences called "Femac Licences" are issued by customs, which means that one can bring goods into the warehouse without involving the customs authorities physically. All the products which enter the warehouse are recorded on computerized lists. When they are sold and leave the warehouse they are again recorded on the lists. At the end of every month, both lists are handed to customs for import duties. Clients only pay import duty when the goods leave the warehouse. This means they do not lose interest, which could involve large amounts of money if the products are of high value.[22]

79. In some of the more advanced ports, the distribution centres are called "Distripark". The concept involves bringing together companies that specialise in grouping, storage, freight forwarding, intermodal transport, cargo distribution, customs documentation etc. together on a site close to a hub of water, road rail or air transport. This distripark is integrated with port terminals and navigation activities and forms a complete platform for international trade and is called "Distribelt" in some ports.

(f). Organizational integration

80. It is more difficult for a port to become a third generation port without undertaking some organizational changes regarding the relationship between activities within the port area and the relationship between the port and the municipality (and local and/or central governments). The relationship within the port area will be discussed in Chapter V., let us see what the new relationship between port and its municipality should entail. As a distribution and logistic service centre, the port is becoming more and more dependent on and integrated in the life of the surrounding city. With its much enlarged dimensions and activities, ports can no longer afford to

keep the simple and somewhat independent relationship they had with the city as a first generation port with activities limited to loading/unloading of cargo at the waterfront. An excellent city-port relation and full support of the former is one of the most important conditions for the success of any port. The survey by IAPH (mentioned in para. 72 above) reveals that in the relationship between the port and the city, the ports emphasize the importance of: (a) hinterland transport access to port; (b) warehouse/distribution facitlities; (c) urban & civil development and (d) intermodal terminals. How can ports obtain support from the municipalities? Port organisers must bear in mind two things: first they must adopt an active approach by presenting their port development plans to the city and governments and explaining fully their needs and difficulties. Secondly they must convince the authorities that city/region stands to gain from the development of the port.

81. In many countries, the fact that the port and the city make their own separate and independent plans has brought about urban degradation. In fact the city and the port are largely interdependent and share mutual interests. The port may be a big job supplier and has various positive effects on the local social and economic life. The city provides basic conditions for the port such as commercial services, telecommunication, land transport, water supply, housing etc. In today's world, the city and port ought more than ever to work closely together; each should look at the problem of development from the other's point of view and consider the other's problems as its own. The city should consider providing the necessary space for the port's new activities such as distribution centres and improving rail/road transport and telecommunication systems. Ports should think more about well being of the local community and make its own contribution. Many ports have no longer the use of old quays and basin which are often located close to the city centre. When the relationship between the port and city is good, the reconversion of these assets would be easier to achieve.

82. Ports, especially those dealing with general cargo, have been undergoing an evolution from the first generation to the second and the third generations, with an increasing role in the transport chain and international trade. There are two very important factors to be borne in mind when building a third-generation port, viz. timing and coordination of actions. Timing is essential since the third generation port requires fundamental changes which can only be achieved effectively after years of effort. The most difficult task is, very often, the motivation of the whole port community and the establishment, among all parties including each docker in the port area, of a common consciousness of the port's development. The building of a third-generation port depends on the quality of the joint work of the port community, government authorities, the municipality and even the people living in the city. Sensitizing people to the desiratility of such a port, according to past experiences in industrialised countries, needs several years of constant efforts. This is partly because the fruits of a third-generation port are obtained only after a period of 4-6 years - even a computerised information system (or an EDI system) usually needs 4 to 6 years before it is considered fully integrated and functional. Coordination means that a third-generation port can only be built through actions being taken systematically, but not independently one of the other. In other words, the services previously mentioned concerning a third-generation port should all be established in a coordinated manner. For example, the building of a distribution centre should be accompanied by flexible customs regulations. The following boxed example is taken from the port of Le Havre, which shows the steps to be taken in turning the port into a third-generation one.

Steps taken to establish a third-generation port

One third of the 250,000 inhabitants of the city of Le Havre is directly or indirectly earn their livelihood from the port. Up to 1985, the port was a second-generation one with industrial and commercial services supplementing the traditional transfer of goods on the quay side. However, traffic was stagnant and competition from other ports strong. Informal discussions started taking place within the port community in order to find ways and means of stengthening and motivating the port community and reactivating port activities and traffic. Action was taken at four different levels:

- The Chamber of Commerce, port authority and the UMEP (which is the federation of 14 unions representing some 250 port and shipping organisations) created PORT ALLIANCE in early 1987. Port Alliance is the permanent structure of the whole port community. It has its Board and a Budget (with equal contribution from the three parent organisations). Its objective is to stengthen the port community and improve the port public relations. It acts at three levels:
  -local level:
  Informing and sensitizing all members of the community about their port (press and publicity campaigns, open-door day of the port - 25,000 visitors, breakfast where some 10 key local people can raise questions to the port decision makers etc) It is essential that all members of the community are motivated.
  -National/international level:
  Publication of the magazine PORT ALLIANCE, press campaigns, joint organisation with the port authority on promotion days.
- At the same time, the port authority reorganized its commercial function placing greater emphasis on the questions of shippers aspects and inland transport. Market segmentation was reviewed and organized by commodities and regions taking into account the transport chain aspects. Efforts were made to develop and promote: frequent and regular shipping services; modern port facilities; improved inland connections and new distribution services. Commercial actions were organized at various levels involving all members of the port community.
- Investments were made for port facilities and equipment as well as for the improvement of inland connections (which is becoming a key factor in choosing a port).
- An information system of interest to the entire port community was established. Basic equipment was financed by the port authority, but the operation was conducted and financed entirely by the concerned professionals. All import manifests are systematically introduced into the system which is in a position to provide on-line information to all the authorized users on commercial aspects, customs and physical movement of goods. Exports are also treated in the same way. The system is inter-connected with the Customs system and the terminal operator and port authority systems.

It took about five years to achieve the above described results.

83. The three generations of ports differ in various respects as described above. Historically, it is the large ports which became first the second and third generation ports. However, the size of the port is not a decisive factor in this field. Obviously there are different degrees in the process of developing port activities. What is important is the motivation of the decision makers. There is scope for many ports located in developing countries to become a second or third generation port, even if their size is limited. Table II-3 shows the process of port evolution and the major features of different port generations.

Table II-3

Port Evolution

	First generation	Second generation	Third generation
Period of development	*Before 1960s*	*After 1960s*	*After 1980s*
Main cargo	*Break bulk cargo*	*Break bulk and dry/liquid bulk cargo*	*Bulk and unitised, containerised cargo*
Attitude & strategy of port development	*-Conservative* *-Changing point of transport mode*	*-Expansionist* *-Transport, industrial and commercial centre*	*-Commercial oriented* *-Integrated transport centre and logistic platform for international trade*
Scope of activities	*1) Cargo loading discharging storage, navigational service* *-Quay and waterfront area*	*1) +* *2) Cargo transformation, Ship-related industrial and commercial services* *-Enlarged port area*	*1) + 2) +* *3) Cargo and infomation distribution, logistic activities* *-Terminals and distribelt towards landside*
Organization characteristics	*-Independent activities within port* *-Informal relationship between port and port users*	*-Closer relationship between port and port users* *-Loose relationship between activities within port* *-Casual relationship between port and municipality*	*-United port community* *-Integration of port with trade and transport chain* *-Close relationship between port and municipality* *-Enlarged port organization*
Production characteristics	*-Cargo flow* *-Simple individual service* *-Low value-added*	*-Cargo flow* *-Cargo transformation* *-Combined services* *-Improved value-added*	*-Cargo/information flow* *-Cargo/information distribution* *-Multiple service package* *-High value-added*
Decisive factors	*Labour/capital*	*Capital*	*Technology/knowhow*

Chapter III

PORT COMPETITION

84. In the first and second chapters, we have analysed the changing circumstances of port production and described what a new generation port entails. In this chapter, we shall discuss the problems of port competition and explain why a port should become a third generation port.

A. Port integration

85. In 1970, there were 35 ports in New Zealand, today the number is reduced to 15.[23] In 1970, North America had 17 major international Atlantic ports, of which only 7 retained this function by the mid-1980's.[24] The transportation technology development and the effects of scale economies have led to port consolidation and the emergence of "main port" concept. To respond to the requirements of trade and international transport, modern ports have become increasingly costly to construct, expand, equip and manage. They are so expensive that without a minimum concentration of cargo flow and a concentration of shipping lines in ports of call, a large port investment can never be justified. The new transport technology such as large specialised vessels, containerization, intermodalism etc. make these two concentrations possible.

86. For general cargo transport, port integration, together with the increasing practice of trans-shipment, has divided world international ports into two groups: One is the so-called "hub-ports", the other is the "feeder ports".[25] It is difficult to say how many main ports there are all over the world and how many there will be in the future. It will largely depend on the development of national and regional economies and that of foreign trade. Here is an example to illustrate today's situation: One of the world's leading lines 'Evergreen' provides an east and westbound round-the-world service linking Europe, Asia and North America, which together represent more than 80 per cent of total world container trade, calls at only 22 ports eastbound and 21 ports westbound.

87. Although all ports cannot be hub or main ports, it is not only these big ports that can become third generation ports. This should be borne in mind by port managers in most developing countries. To be a big trans-shipment port is not always a realistic prospect which, as described in the UNCTAD study on trans-shipment, depends on a number of factors such as geographic location in relation to main maritime routes; and a heavy national or regional traffic. This is often beyond the ability of many ports. But a much more realistic and promising way of up-grading is available to all ports: building the port into a third generation one. If the objective of the port is to ensure reduced total cost and maximum value-added for port users as well as to ports themselves, as analysed in a recent UNCTAD study on port management,[2]&s6, a third generation port is a valuable way.

88. Turning a port into a third generation one is not merely an alternative solution - for most ports it will become the only means of survival. The port consolidation process will continue and some estimates foresee that by the end of the 1990s, North America will have only three or four major international Atlantic ports. A similar situation is possible in western Europe in some countries of Asia. Owners of high-speed post-panamax container vessels are considering further reducing their ports of call. Feeder ships are getting larger salready over 1000 TEU in South East Asia), and there is a greater concentration in ports serviced by feeder ships. This is definitely true since land transport has improved. Ports failing to develop and upgrade themselves, run the risk of being closed down.

89. Port consolidation has been taking place through port competition. Ports compete with each other like all other service activities and only the strongest survive and develop. Today it is almost impossible to work out a port development strategy or a port promotion plan without first analysing port competition to find out what must be done to overcome the port's weaknesses, to better satisfy port users and thus gain a share of the market.

B. National and international port competition

90. Compared with other industries or service activities, ports are less used to competition. In the past, each port used to have its own group of clients whose activities were just within the proximity of the port area and its captive hinterland, whose business was often out of the reach of other ports due to the expensive and under-developed land transport system and sometimes due to political and administrative barriers. This resulted in the traditional conservatism of port management. There was no need to worry about the captive market since the cargo could not be flown or easily transferred elsewhere nor was any need to be concerned with the working of other ports since this was unlikely to affect one. Today this situation is over in most parts of the world. Ports suddenly find themselves in the same competitive market, hunting cargoes in the common hinterland. Competitors come form near and from far. Ports have to take competition very seriously since it can dramatically alter their situation. To take a recent example which took place in January 1991, the round-the-world shipping line Evergreen would no longer call at an European port and the new port of call was a neighbouring port. This simple switch, in the eyes of the shipowner, meant a lot for these two ports since the shipping line's two sailings per week generated an annual throughput estimated at around 70,000 containers or about 105,000 TEUs. Already more than 100 job losses have been announced at the former port of call.[27] Many other similar examples could be quoted from almost all geographical areas.

91. Today, a port faces three categories of competition: inter-port competition, within-port competition and intermodal transport competition.[28]

1. Inter-port competition

92. Ports in developing countries must pay adequate attention to inter-port competition even though such competition might not yet psse a threat to a number of countries. The experience of industrialised countries has shown that if one or all of the following factors change, inter-port competition emerges and develops very rapidly.

93. Inland Transport System Each port has its own market in which it enjoys a particular geographic advantage. When the inland transport system is not developed there might be little inter-port competition. If the inland transport system is improved, which is happening in some developing countries, other ports may be in a position to interfere and capture part of the market. Except for certain bulk commodities, the concept of "a captive hinterland" will no longer exist. Will this be an advantage or a threat? For each individual port it can be either. Port personnel in developing countries must come to terms with the fact that once inland transport networks have been improved, ports will no longer be the same. They will become either stronger or weaker through inter-port competition. For example, the Andes Mountains cut off the Pacific coast from the rest of the continent. Existing land links between the Pacific and Atlantic coasts are slow, of low capacity, and suffer frequent interruptions. Recently, an ambitious plan has been proposed to create a transcontinental landbridge across South America, linking the Pacific coast of Chile with the Atlantic coast of Argentina. Such inland transport improvements will bring ports at two sides of the continent into competition.[29] In developed countries, such competition can be found between ports of the same region such as the ports in Le Havre - Hamburg range or between distant ports such as the ports on the north west coast of Europe and ports in the north Mediterranean, or between ports on the east and the west coasts of North America.

94. Trans-shipment Even ports in an island countries are involved in the inter-port competition, because of trans-shipment activities. Ports on the north west coast of Europe compete for some British trans-shipment cargoes and ports such as Singapore, Keelung, Kaohsiung, Hongkong compete for trans-shipment cargoes from Thailand, the Philippines and Indonesia.

95. Freight forwarders/Multimodal transport operators (MTOs) Trade transportation arrangement is a very special profession. Freight forwarders and multimodal transport operators play a decisive role in today's international transport evolution, especially in the revolutionary door-to-door intermodal transportation. They are transport and distribution specialists and greatly influence port activities and inter-port competition in the following ways:

- Freight forwarders and MTOs often have their own operation and information networks in the region. Through such networks, port users are informed much better and quicker about every technical, commercial, operational or social difference between different ports. This was

not the case when shippers had to arrange their cargo transport themselves. So, now with a good information network, port users compare different ports constantly, making full use of every difference and advantage and pushing ports into fierce competition.

- Freight forwarders and MTOs have led to a loss of identification with and loyalty to specific ports on the part of shippers and consignees. Thousands of shippers and consignees are now represented by a small number of freight forwarders or MTOs. These latter may have an equally close relationship with, and an office in, each of the competing ports. Shippers loyalty is no longer a competitive factor.
- A modification of transport routes from one port to another is much easier for transport specialists like freight forwarders and MTOs than for shippers or consignees, since the former are better acquainted with sea and land transporters, cargo handling and storage companies, customs offices and other relevant units on the new transport chain. As consolidators of small consignments and representatives of shippers, they are relatively strong vis-a-vis transporters and other relevant parties,which makes the modification of the transport route easier. With the help and cooperation of freight forwarders and MTOs, big shipping lines can now change the port of call with much less difficulty.

96. In industrialized countries, freight forwarders represent the majority of trade transport activities in the market. In France for example, 70 per cent of maritime freight for all export cargo is arranged and paid for by French freight forwarders. In the Le Havre region, there are more than 100 freight forwarding enterprises with 2700 people.[30] In many developing coutries, freight forwarders and MTOs are becoming more and more active. Ports should be prepared as early as possible for this new eventuality.

97. Political and economic barriers Neighbouring ports located in different countries may enter into competition when the political and economic barriers once preventing the free movement of cargo are swept away. The Uruguay Round of GATT talks, for example, should be closely followed by ports in developing countries because this can bring them new markets as well as new competitors.

2. Intermodal transport competition

98. A port's competitors do not always come from other ports. Ports may be heavily involved and influenced by competition between different modes of transport. World air cargo transport with its annual growth rate at double-digit levels in recent years is taking more and more high valued goods away from traditional sea transport, for instance, in 1987, for example, 36 per cent of Caribbean exports (excluding petroleum and sugar) to the United States were transported by air.[31] There is also competition from land transport. The trans-Siberian land bridge has taken away some containerised exports from Japan to western Europe and the Middle-East, which means a loss of business for shipping lines as well as for ports in these two regions. The coastal cargo liner services in many industrialised countries in Europe, North America and Japan are being increasingly replaced by road or rail transport, thereby greatly affecting port activities. This will certainly occur in developing countries too once the land transport system is improved.

99. One may think that in intermodal transport competition, ports are merely indirectly involved. Competing with other modes of transport is the business of shipping companies. It is true that shipping companies are in the front line of competition, yet ports can be prosperous only with growing maritime transport. Faced with intermodal transport competition, ports should definitely become more active. In the following section which deals with port competitiveness, we shall see, in the field of costs, transit time, distribution services etc, how much ports can do and how important a role ports play to improve their own competitiveness and that of maritime transport.

3. Within-port competition

100. A port manager has to deal with all kinds of port competition, within-port competition is one of them. For the port authority or the port itself as a whole, competition within a port can serve as a management method to improve the efficiency of the port activities.[32] Competition between the operators or providers of facilities within the same port can generally increase port efficiency and improve services. A cartel or operational monopoly of port activities such as cargo handling, warehousing etc is to be avoided. This however, is not always the case. Organizational difficulties and lack of willingness make it unlikely for a comprehensively public owned port to

introduce competition within its organization. In fact if both inter and within-port competition are absent, it is very likely that the port efficiency is poor.

101. Modern cargo-handling technologies and economies of scale can be reasonable arguments against within-port competition. However, if inter-port competition is almost absent, it is wiser, before deciding whether or not to have within-port competition, to balance the likely loss due to the lack of scale-economies and loss due to the lack of competition and efficiency. Very often, the latter turns out to be larger than the former.

C. Decisive factors of port competitiveness

102. In the port consolidation process, ports compete with each other for development and survival. The following factors are key elements for port competitiveness. To create a port development strategy and to improve port efficiency, it is essential to analyse all these factors for all ports, with or without inter-port competition, for these factors are based on a single principle: that is, to service port users better.

1. Geographical location

103. Obviously this can be considered as an innate condition of a port. A port has more competitive advantages when it is strategically located. Such a location implies that the port should have at least one of the following three characteristics.

- Ports situated on the main maritime routes. A good example is of course the port of Singapore. Port Said, Cristobal in Panama, Malta and Colombo can also be listed.
- Ports situated in or near production and/or consumption centres. Such as Rotterdam, Tokyo, NewYork/New Jersey, Santos and certainly the raw material exporting ports in Brazil, Australia or the Middle East.
- Port with natural deep water harbours, natural breakwater and big waterfront and landside development possiblities. Ports without these favourable natural conditions have to dredge the harbour and build the breakwater, which increase the cost of port services.

104. While the geographical location is the prime factor in port competitiveness, it is worth noting that many ports without such good natural conditions have obtained very big market shares by the promotion of other competitive factors. Also there are other ports with good geographical conditions which failed to develop into big ports because of poor port organization and management.

2. Hinterland transport connection

105. This is often treated as a natural condition of the port. But actually it is not really so. In North America, ports are more and more involved in projects involving rail or road access to the port. As we described earlier, the port is no longer seen as a starting and ending point for international cargo trade. As an illustration to this point, ICC has introduced in its "Incoterms 1990" a new term "Free carrier...named place" (FCA) to suit the increasing practice of door-to-door intermodal transport service. An intensive, efficient, cheap and reliable rail/road and/or inland waterway transport system is capital for the port to attract cargo. As expressed by a Logistic Service Manager of Rhone-Poulenc, a French producer of chemical products, "a shipper doesn't choose a port but a transport chain of which a port is merely a node".[33] In Australia, an Interstate Commission recommended a series of reforms across all sectors of the importing/exporting and transport industries. These recommendations indicated that potential savings through reforms in the transport industry was estimated to be five times those available through reforms inside of the dock gate.

106. Normally between competing ports the difference of transport cost is more important in land-leg transport than in sea-leg transport. Thus port planners in developing countries should pay equal attention to hinterland transport connections as well as to marine or cargo-handling facilities. Availability of "ondock railways", intermodal terminals and highway systems are becoming pre-conditions of modern cargo moving. Ports should actively promote special and new transport facilities and techniques such as oil pipeline, double-stack train, airport etc. Port do not

have to be directly involved in the land transport operations, however they should ensure a healthy transport market.

3. Port services -- Availability and efficiency

107. Port services have been expanding from waterfront operations to a number of off-quay activities. As have been noted, the very important role of shipping agents and freight forwarders is often more or less neglected in developing countries. These people are working for shipowners and shippers -- the port's only two clients. Ports should consider them as their own sales team: consult them, cooperate with them to solve their problems and in short make full use of them. As described earlier, active freight forwarders will bring more cargo to the port and motivated shipping agents will keep shipping lines using the same port. Examples are not rare of shipping lines switching from one port to another, not because of direct port services but because of the unsatisfactory performance of shipping agents. To maintain a dynamic environment, within-port competition and private sector involvement should be ensured.

108. Efficiency often means speed and sureness of port services. From a survey made by a big intermodal transport operator/shipping line APC of its shippers, as shown in Table III-1, one can observe that transport efficiency described as "on time delivery" is the first concern of shippers, who are at the same time directly or indirectly port users.

Table III-1
What shippers want most

priority	*item*	*priority*	*item*
1	*On-time delivery*	*7*	*Billing accuracy*
2	*Overall responsiveness*	*8*	*Correct equipment*
3	*Price*	*9*	*Degree of control*
4	*On-time pick-up*	*10*	*Claims processing*
5	*Transit time*	*11*	*Tracing capacity*
6	*Service territory*		

Source: 1989 APC survey - American Shipper, (March 1990)

109. Obviously, no "on-time delivery" transport, whenever there is a sea leg, can be ensured without an efficient port service. In short, to be competitive, all port activities should be quick and capable of providing quality service at an acceptable price to port users. This depends on the modernized organization and management of ports.

4. Price of port services

110. It is true that in relation to international transport and distribution, more and more shippers, when questioned, place the quality or efficiency of services before the price of those services. Many examples have shown that those ports which are expensive but efficient are more competitive than the cheaper but inefficient ports. Nevertheless port service prices are still one of the most important, if not the most important, factor of port competitiveness for the following reasons.

111. First, different port users do not have the same port service requirements. There still are, and will always be, some categories of low-value cargo or ships which are more sensible to port pricing than to any other service factors.

112. Secondly, shippers give preference to the quality rather than to the price of port services when quality of service differs from one port to another. Obviously, the price factor will be paramount when little difference is to be found among ports. This is happens in most of the industrialized countries and some developing countries. The port media director of New York said that sometimes as little as a few cents per ton is all it takes to encourage a shipper to make a change in port of call.[34] Consequently, if we compare the tariffs of world ports, we will note that the majority of the biggest and most efficient ports are relatively cheap ports.

113. Thirdly, all port managers have to be sure that the requirements of their two clients --

shippers and shipowners are very different, especially vis-a-vis port pricing. Many shippers, general cargo shippers in particular, are less sensitive to port charges, because in their total production costs, cargo transportation occupies only a small part (10 per cent approx.) and the proportion of port cost is even smaller, thus shippers tend to insist on the quality of services. If port personnel were to raise their charges since shippers are indifferent to the price, they would be wrong, for they would not have taken shipowners into consideration. If we look at the role that port charges play in a shipping line's production costs, we will understand why the price of services are so important for port competitiveness: Take an example of a time-chartered 2,500 TEU full container vessel to carry 2,250 TEU from 5 Asia-Pacific region ports to 5 west European ports. Voyage takes 30 days, charter hire is US$20,000/day, containers leased at US$2/day-TEU, fuel costs US$3,600/day, other charges (commission, Canal charges, overhead charges etc.) are US$200,000. The shipowner has the following account for the voyage: charter hire US$226/TEU, container leasing hire US$60/TEU, fuel costs US$48/TEU, other charges US$89/TEU, subtotal: US$423/TEU. Let's take a look at port charges. Assuming that at each port 500TEU are loaded and 500TEU are discharged, the average port charges are US$35,000 for subject vessel at each port and average container handling cost is US$130/TEU. The shipowner has his port cost as follows: port charges US$70/TEU, handling cost US$260/TEU, subtotal port costs: US$330/TEU. Conclusion: in the total cost of US$750/TEU, port cost takes 43.8 per cent ! How can shipowners be indifferent to port costs? Take another example about container handling charges: among competing ports in western Europe including Mediterranean ports, it varies from US$93.5/TEU to US$220/TEU.[35]

5. Socio-economic stability

114. Port users are generally less afraid of port service quality or price which they can measure and negotiate with port operators than of socio-economic stability over which the port authority and operators have no control. Social economic instability implies not only events like civil war or unrest, it may include strikes, safety problems, boycotts , unstable service standards and charges etc. The Australian government published an interesting report of the Bureau of Transport and Communications Economics entitled "The Cost of Waterfront Unreliability in 1988". This study estimates that the aggregate costs of the various forms of waterfront unreliability to Australian exporters lie within the range A$131-146 million, to Australian importers between A$513-534 million and of foregone Australian exports of A$210-314 million. The total is A$854-994 million for 1988.[36] It is not the cost of inefficiency as such but merely the effect of unreliability. The major factors are the financing costs for inventories, for goods in transit and for ships. Since then Australia has undertaken a major "Waterfront Reform" which is already bearing fruit: e.g. productivity at the CTAL container terminal of Botany Bay is already 30 per cent more although a reduction of 30 per cent in the number of employees took place. Since this is a kind of risk and not always measurable for port users, the port nevertheless assumes the reputation. A port's image, once established, is difficult to change so port people must optimize the attention paid to all port services. The port of Baltimore, having solved its labour problems, had to convince prospective port users that the social situation of the port was indeed stable. A good socio-economic climate is the prerequisite for stability and efficiency of port activities. Modern container lines calculate their port routings in hours, no stoppage of port work is acceptable. Other social problems can also provoke serious consequences for ports. For instance, to avoid drug traffickers, who seem determined to use containers for their illicit shipment ... Evergreen suspended all calls in a Caribbean port. Since then westbound calls have been only to discharge containers ... no cargo is loaded, only empty boxes bound for the Far East while the eastbound service continues to by-pass the port.[37]

6. Telecommunication

115. A number of ports in developing countries are still having communication problems. Here we refer particularly to telecommunication facilities which link the port and the city to the rest of the world. Such a system is generally built by the state or the municipality. However ports should work very closely with local authorities to upgrade their telecommunication system. Shippers won't send their goods through a port where there are no means of tracing cargo movement. Nowadays it is becoming increasingly difficult for a port to attract cargo, especially container cargo without a good telecommunication system which include fax machines, IDD (International Direct Dial) telephones or even a computerised EDI system which is linked to the world network. Some ports of industrialised countries have developed their own inter-computer system with that of port users and of other ports. The port of New York/New Jersey's automated Cargo Expediting System has

been very successful in bringing EDI effeciency to all shippers and transport companies at very low cost. Usage cost is equivalent to the cost of a local telephone call and it can accurately track cargo movements and inventories. Software is provided free of charge to subscribers.[38] Today, a new word has been put in use: "Infostructure", which implies the hard and soft ware telecommunication and EDI system built in the port area.

116. Besides the six factors noted above, there are indeed other factors, less important perhaps, but which nevertheless have a direct influence on port competitiveness. For example, the existence and development of financial institutions such as banks, insurance companies and the local conditions of life etc.

D. Port promotion in special cases

1. "Non competitive" environments

117. Ports do not always operate in direct competitive environments. Some people try to prove that competition need not or should not be emphasized. The following three "reasons" are commonly cited in this regard.

118. **Hinterland still captive** This is the case of islands where there is only one single port and except for limited competition coming from air transport all cargo in and out of the island have to pass through that port. This is also the case where a port finds no other competitor in the same area (or range) because inland transport is so underdeveloped that the hinterland's transport connection is with that one port only; or where administrative barriers prevent shippers of the hinterland from using an alternative port. In summary, the port always has its 'captive' hinterland.

119. **Shortage of port supplies.** Sometimes a port may have no need to compete with others for the port is fully utilized and is fully operational. This is still a common situation in some developing countries where foreign trade is taking off and ports are usually congested. So it is perhaps difficult to talk about competition for more business with ports that already have "too much to handle".

120. **Concern about scale economies** When the national market is big, it is good to keep within-port competition to a certain level within the country. If the port has a large cargo throughput, it would be advisable to introduce and maintain an inner-port competition environment. However, when the national market and/or the port business are relatively small, problems will occur. New technology in maritime transport and port cargo handling require maximizing economies of scale and concentrating of activities to justify big investments. One certainly should not dredge 15 meters water drafts in every port capable of receiving big bulk carriers, which are likely to call only 10 times a year for the whole country.

121. There are serious difficulties which developing countries may encounter when they want to increase their port efficiency by introducing and encouraging inter and within-port competition. Nevertheless, these difficulties can and should be overcome, especially, if as discussed earlier, we look at these port problems from a new angle and in a long-term and global context.

2. Macro-economic effects

122. In fact many developing countries whose foreign trade volume is still relatively small, find their ports operating in non-competitive markets. Some people in developing countries think that it is good for the country and its ports not to be in competition, since the ports are still weak compared to foreign ports, and that competition will lead either to a situation of underutilized facilities and the country's investment will not be justified; or to a decrease in port tariffs which means a smaller revunue for the state budget. In some countries even administrative or legislative barriers have been built for the purpose of elimination of competition inter and/or within ports. This attitude often results in the opposite of what people expect.

123. The three factors responsible for a non-competitive environment are actually changing factors. That is to say depending on the economic development of the country or the region the factors will change and the port environment will evolve to become a competitive one as past experiences of ports in industrialised countries have shown. Captive hinterlands will become common when inland transport systems are improved. Port congestion will disappear with more efficient

and modernised organisation and management as well as with new investment. The economies of scale will no longer be in conflict with port competition when the country's foreign trade and port throughput grow to a higher level. In any case, the question of port competition should be considered from a long-term point of view.

124. Port service is not an isolated and independent activity. As we noted, it is a vital part, an integral element in the foreign trade and the economy of the country or the region. Whether the port is in a competitive market or not, the nation's foreign trade is always involved in it. Port performance directly affects the competitiveness of a country's foreign trade. For example, the cost of producing Brazilian soyabeans is US$165 per ton and the cost of loading them aboard ships is US$65 per ton; while in the United States, soyabeans are produced at US$195 per ton and loading at only US$20 per ton.[39] Generally speaking, ports in the Asia-Pacific region remain the cheapest in the world, thanks to a high level of competition (to load or discharge one TEU in 1988, it cost US$118 in Hongkong, US$85 in Singapore and US$70 in Port Kelang), and nobody can deny the important contribution of ports to the trade-led economic prosperity of that region.

125. As one of the conclusions of a recent port management study of UNCTAD,[40] Ports should encourage an within-port competition system, especially when the port is in a limited inter-port competition environment. Let us take the Chilean port experience as an example: Due to competition between stevedoring companies within each port, Chilean ports have become progressively more efficient and better able to handle that country's foreign trade. In fact, if 1981 productivity levels had been maintained, around 2.1 millions tons of fruit, general cargo and forest products could not have been handled without the enlargement of port facilities at a cost of over US$500 million. The maritime Chamber of Chile has estimated that the annual savings exporters and importers enjoyed from the commercially oriented port reform and then from the increased production, amounted to US$40 million during the first year after the adoptionof port reform and by 1989 exceeded US$88 million.[41]

Chapter IV

PORT MARKETING

126. Marketing has been defined as: "The management function which organises and directs all those business activities involved in assessing and converting customer purchasing power into effective demand for a specific product or service to the final consumer or user so as to achieve the profit target or other objectives set by a company".[42] This definition was produced in a general marketing context, and not specifically in relation to ports: but in fact, it is valid in relation to port marketing.

127. In today's highly competitive environment, marketing is one of the most critical activities of a port. First, port services are financially viable only if they can be sold in the market. This final and most important activity is port marketing. It may by argued that marketing is important but good services at reasonable prices are crucial. It is true that bad port services can hardly be sold in a competitive market even with excellent marketing. But, what are good port services that can be appreciated by users? It is through port marketing that ports are able to learn what port users need, since among all port activities, marketing is the only one which allows for direct contact with port users. This is the second resson for giving port marketing the greatest attention. In today's competitive buyers' market, the winner is the one who maintains the closest relationship with port users, satisfying them quickly and completely. In other words, the winner is the one who has a dynamic and efficient marketing approach. Even in a port where direct inter-port competition is not yet fully represented, marketing plays the key role in fulfilling port objectives, by offering exactly what port users need. In most developing countries marketing is still one of the weakest aspects of ports in spite of notable efforts. To be a third-generation port, a strong, active marketing is indispensable.

A. Port marketing -- objectives and tasks

128. In any port, there is a need to define marketing objectives and strategy. The port's marketing objectives are not isolated, but subordinate to the port's general objectives. If the general objective is to maximize port profits, the marketing objectives must be financial in terms of profitability and rate of return on capital. If the general objective is to minimize the cost of cargo passing through the port and to maximize the added value to the cargo, then the marketing objective will be more concrete, such as attracting and obtaining more traffic to ensure full use of the port facilities at a high level of productivity.[43] There may also be a desire for diversification and establishment of port activities that lead to reduced risks or added value, e.g. cargo distribution activities.

129. Apart from all this, there will be strategic marketing decisions e.g. leasing of berths or port terminals to operating companies or shipping lines; and indeed, policies with regard to the availability of common-user as against sole-user berths. There will also be strategic decisions as to the length of time for which berths, land and/or building may be leased. Indeed, port land use policy involves a variety of strategic decisions. For instance, because of changes in shipping technology, vessel size (and port routing), old port facilities may be redeveloped in accordance with existing or anticipated requirements, e.g. as a free trade zone or a distribution centre, depending on the legislative and marketing situation.

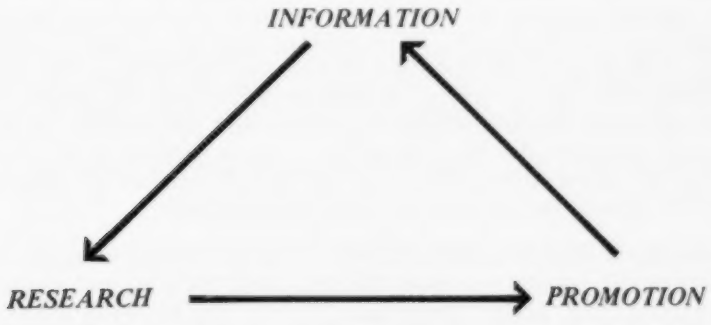
130. To many people, Marketing is just a fashionable word for advertising; for others it means selling. However, this is only a part of the port marketing activity. Others, less visible parts, are information and research activities. It is in fact these activities that decide the effectiveness of port marketing actions.

131. There are three main tasks (or groups of activities) in port marketing: information, research and promotion. Marketing is not only the diffusion of relevant information to port users about what the port can offer, but also the collection of information from port users about what the port should offer. So, the first task of port marketing is not to give, but to receive information. Based

on this marketing information, research work should be undertaken so as to make appropriate marketing strategies and fix marketing targets. This is the second task of port marketing. With a precise target in mind, a marketing plan can be worked out to decide what, how and when actions ought to be taken. Then on this basis, the marketing actions should be implemented.

132. These three tasks should be very closely inter-related. Much of marketing information needed for research is normally obtained when carrying out market promotion. Similarly, research work would be less significant and reliable if it were not done by the people who had direct contact with port users, i.e. people who undertake market promotion actions. (see Figure IV-1 below) Time and effort should be allotted to each of these tasks and they must be coordinated to form the vitally important activity of port marketing.

Figure IV-1
Port Marketing



133. Successful port marketing requires not only sufficient resources such as people and capital, it is essential that those involved in port marketing be given more power in all decision-making procedures of the port, especially regarding port planning, port pricing, joint-ventures, commercial cooperations and new activities. In fact, as far as port users' requirements are concerned, marketing people are the best situated and most competent to influence such commercial decisions of the port.

B. Port marketing -- information

134. To achieve marketing objectives, the first task is to gather all relevant information. Very often, inefficient marketing is the result of information that is neither exact nor sufficient.

135. Marketing-oriented information is varied and can be summarized as following:

- Information about all actual and potential port users, especially big clients regarding their production and business evolution; their medium and long term plans; their organisation (how transport is arranged and by whom) and their expectations and difficulties regarding international transport. There are ports which are systematically collecting customs statistics and information: to better identify importers or exporters who are using other ports and who can be attracted if interesting conditions are proposed to them. Sometimes, direct port users are freight forwarders or multimodal transport operators. It is not enough, in that case, to learn only about these direct users, but also to be familiar with all the above information about "head users" - real shippers and shipowners. If it is possible, the same information should also be collected on port user's main commercial rivals.
- Information about technological and economic changes in maritime, inland, waterway and air transport as well as in ports: the evolution of multimodal transport; the new forms of containers; the EDI system; inland transport improvements; new types of vessels or other transport media; the advantages, shortcomings, cost and the pace of these changes; also new technological changes in port industry such as cargo handling, navigational services, information processing etc.

- Information about economic, commercial and industrial changes affecting cargo volume, origins and destinations. This refers to the economic, commercial and industrial development of the country or region or enterprise, trade patterns, new trends in production, distribution and consumption etc.
- Information about the situation and development in other ports. Port marketing information on other ports should be as complete as possible, especially for competing ports. Information should be gathered on their organisation, facilities, capacity, performance, charges and other aspects relevant to port users, such as labour relations, transport costs to/from inland areas and shipping services at competing ports.
- Finally, information about one's own port must be comprehensive and in-depth.

136. Marketing information gathering is a continuing task; out-of-date information could lead to wrong decisions. Thus a marketing information collection system should be established and maintained.

137. The question of how to get all the required information is as crucial as the question of what information should be collected. Since there are no magical solutions, two traditional ways must be employed: direct information collection and indirect information collection. Direct information collection generally implies sending and receiving questionnaires or paying direct visits to the source of the information. In this context, an important step is to combine promotion visits with infomation collection. This is not only the most economical but perhaps the most efficient way to getting valuable information. Before paying a promotion visit to an actual or potential user, a precise information collection objective should be set out and plans made. Besides promotion visits, special visits should certainly also be arranged to sources such as governments and other relevant institutions. Indirect information collection signifies all sources of information such as the press, reports and publications, formal and informal interviews etc.

138. The port community itself is in fact a very rich source of information. Information about competing ports, their tariffs, inland transport charges, their facilities and service performance etc, can generally be obtained from freight forwarders, MTOs and shipping agents in the port area. The economic and commercial situation in trade and transport can be learnt from organizations such as the Chamber of Commerce and Industry, the Shippers' Council or the Shipowner's Association.

139. Port marketing information collection should be entrusted to those persons with a strong sense of responsibility, who have not only a very wide range of knowledge about the port, its users and all related activities, but are also highly motivated. They should have a feel for information gathering and the ability to seek, identify and analyse different kinds of information. Although marketing information collection is usually carried out by specialists, it is never exclusively handled by them. Every person working in the port should be responsible for obtaining marketing information. The port organisation should encourage people to do so and praise and compensate them accordingly.

C. Port marketing -- research

140. Ports may undertake the research work with regard to market segmentation. Marketing can be segmented to meet the requirements of different types of users and traffics, e.g. container shipping, roll-on-roll-off services, dry and liquid bulk traffics. If relevant, marketing activities can also be carried out in connection with specialised traffic. There are ports, for example, whose location, depth of water and the availability of land area and covered storage, make them well suited for the building up of ship loads of project cargo; which have accordingly developed a marketing effort specifically aimed at such traffic. There are also specialised ports permitted to handle e.g. specified ranges of hazardous cargo. In relation to market segmentation, marketing requirements are ascertained in relation to bodies such as shipowners, shippers and other relevant organisations. In liner shipping, marketing work is likely to be carried out especially in relation to shipowners and shipping agents, but also taking into account large shippers or groups of shippers who may be able to influence port routing. There may also be a need for marketing activities in relation to relevant shipping conferences. In relation to container shipping, marketing is likely to be concentrated on the shipowners concerned. In non-liner, e.g. bulk trades, the primary need is to have contact with shipper and/or importing interests. In relation to the segmentation of marketing, there is a need for continuity of marketing activities and of personal contact with appropriate persons in the

organisations concerned.

141. Port marketing is not a once for all activity necessary to win new traffic; but also to consider the probable future of the port's existing traffic. It must consider likely changes in cargo volumes, traffic origins and destinations, cargo handling and possible decline in an activity or activities at risk. One need only consider the develoment of traffic in recent times through some ports that were formerly substantial general cargo ports, to see the need for an assessment of the evolution of existing port traffic.

142. If marketing action cannot help to save cargoes at risk, there is a need to consider the impact of the loss of such traffic on the utilisation of port facilities, and on the trade of the port. Then one must consider whether the location and nature of the port, make it potentially suitable for adaptation - with appropriate marketing, and possibly with new investment - for new types of port trades.

143. Various factors can affect the use of ports and the scope for port marketing. It is useful to examine the situation systematically, to help ensure that all relevant factors are considered. One way of doing this is to analyse the factors affecting port traffics in relation to the following categories:

- The implications for ports of technological and economic change in transport
- Developments elsewhere in the transport system, and their implications for a port.
- The effects of commercial and industrial changes affecting cargo volumes, origins and destinations.
- The effects on a port of the policies of government and other institutions.

1. The implications for ports of technological changes/economic change in transport.

144. In the maritime transport sector, changes in transport technology and economics changes are often the consequence of a desire to reduce vessel turnaround time, and/or to reduce cargo handling costs. The desire for such improvements has resulted in changes in the way in which cargo is presented, changes in the methods of shipment and changes in the types of vessels used. Such changes have included the containerization of cargo, the handling of former general cargo in bulk, and where relevant, the palletization of cargo. An important consequence of all this has been a substantial increase in the freedom of shipowners to choose which ports they use. This increased freedom has in its turn, encouraged port authorities to increase the extent of their marketing activities.

145. Generally, increasing vessel size is associated with decreasing ton-mile transport costs. However, ports that vessels used in the past may not necessarily have sufficiently deep water (nor sufficient back-up land area for cargo storage) for new requirements. In that case, a port may find it necessary to provide improved port facilities, if a particular shipping operation is to be retained. The use of larger vessels is associated with higher daily vessel costs, and the use of such larger vessels can only be justified if they are able to sail with satisfactory cargo loadings, However, to achieve such loadings, vessels must have a sufficient frequency of sailings; and if large vessels are to be used with relatively high frequency, this may imply a need to serve larger geographical hinterlands.

146. Port routing has become much more flexible in recent years, and there is an evident need to understand the norms used by a shipowner to assess the merits of different port routing possibilities. Naturally, shipowners are interested in minimizing their costs, seeking to lessen the number of port calls, and seeking to reduce port call time at individual ports. Various factors can cause delays in ports, but shipowners will of course keep track of the availability of berths and of labour, as well as other factors that can cause delay in serving different ports, e.g. tidal delays at ports with entrance locks. Among other causes of delay are Customs and documentary problems - and there are some ports that specific deep-sea shipowners have refused to service directly precisely for this reason, preferring to transship. The reliability of service at different ports this may be of considerable importance, especially where tight vessel scheduling is necessary for commercial reasons. This is also a matter affecting port marketing, for ports with a record of prompt and good service, will be relatively better placed to be chosen as ports of call.

147. Indeed, in optimising their choice of ports of call, shipowners are not only concerned with reducing their voyage time and costs but, also with the revenue implications of calls at different

possible ports. Other things remaining equal, direct calls are more likely to be made at ports generating additional cargo and revenue.

2. Developments elsewhere in the transport system and their implications for a port

148. New developments or the expansion of existing facilities at other ports may affect a port's own traffic, and their implications on port marketing need to be considered. As far as physical port developments at other ports are concerned, it is necessary to consider their magnitude - this including magnitude in terms of capacity to accept different sizes and types of vessels. It is obviously necessary to consider the types of traffic which other port developments may (or may be intended to) attract; how far such port developments are likely to compete with the port's own traffic; the likely strength of competition from the new port facilities, and indeed the likely "strength" and "weaknesses" of such new port facilities from a port marketing standpoint.

149. If port facilities developed at another port are under-utilized, and especially if their expected ultilizsation fails to materialize, it is desirable to watch the situation carefully, in case this gives rise to any strong marketing action by that port to attract alternative traffic.

150. These comments are not meant to imply that developments at other ports should always be regarded as being competitive. Obviously, a port may find some developments competitive, but others not so. Indeed under certain circumstances, developments at another port may provide a basis for the development of a shipping service between the two ports and for a mutually beneficial marketing co-operation between them.

151. The expression "port development" covers not only physical developments at other ports, but also commercial developments which may or may not have related physical aspects. It is necessary to monitor the progress of such developments by other ports, e.g. the development of terminals for different types of traffic and commodities, the establishment of inland container depots, or of through-transport services.

152. Railway development may have the effect of expanding a port's geographical hinterland, adding to port throughput. Railway development does not necessarily mean the construction of new railway lines, but technological and commercial re-development of a railway system. In the United Kingdom for instance, the use of container trains has helped to make it economical for some container ship services to serve the entire country from a single English Channel port. The English Channel Tunnel will provide an example of competition between ports/shipping and railways. Railway/road development can also largely replace coastal shipping and thus reduce port activities. Waterway developments may also affect flows of traffic through different ports.

3. Effects of economic, industrial and commercial changes on cargo volumes, origins and destinations.

153. Various factors cause changes in the direction of a country's exports or imports, and in their destinations or origins. Membership of a regional customs union or a similar organisation can have a powerful effect on the direction and volume of foreign trade. In the U.K. for example, entry into the EEC affected the geographical pattern of dairy produce imports. There have also been changes in the geographical pattern of world trade in commodities such as iron ore and coal. Availability of large bulk carriers with low freight rate made possible the use of ore and coal from trans-oceanic countries of origin; but also required the provision of deepwater port facilities in the importing countries. Port traffic in agricultural products can increase or decrease in any region, and indeed may change direction with changes in production levels and in domestic consumption. The United States for example was a major importer of vegetable oils in 1950, but with subsequent increase in production became a major exporter. Conversely, Taiwan, province of China, was a big exporter of banana and sugar in 1950, but as a result of rising local consumption, the island is now an importer of these products.

154. Changes in the availability of raw materials and primary products can have a major effect on port traffic and the demand for port facilities. For example, a discovery of oil can have a direct impact on port traffic, and indeed a port can become a new oil/petrochemical exporter. Changes in the cost of a commodity such as oil can have very important indirect effects on port traffic, and on the requirements of port facility. Substantial increases in the price of oil during the 1970's for instance, generated a growth of interest in the substitution of coal for oil as fuel in power stations

stimulating an increase in the world coal trade and thereby, in port facility requirements.

155. In many countries, new import substituting industries are being developed thus reducing the tonnages of traffic in the importing port, and in the foreign exporting ports. Cement and steel are examples of products now produced in many countries which had previously imported them. If the imports formerly moved on liner services (steel for example has sometimes moved in substantial tonnages), these may cease to call in the former exporting country's ports.

156. Conversely, new industries may not only replace former imports, but may also develop as exporting industries. When there is a reasonable increase in the volume of exports, then it may help to encourage outwards shipping services. Clearly, this would be a subject of potential interest to a port in a country which is developing new exports of manufactured goods.

157. As noted in the first chapter, in many countries, commodities that were formerly exported raw or unprocessed, are now shipped in semi-finished or finished form. Indeed, there may be restrictions on the export of particular types of unprocessed cargo. Some countries that export forest products for example, do not permit exports of logs, allowing shipments only in semi-processed form as plywood or as finished products such as furniture. Grain imported in bags can be more advantageously imported in bulk if the volume of trade is sufficient. This implies the construction of sites. Such developments may affect the types of vessel used, and port facility requirements.

158. Comparative levels of freight rates can affect the willingness of shippers to use specific ports. In the liner trades for example, ports will seek the removal of outport or other surcharges which discourage to shippers. Apart from this, changes in freight rates and in inland transport charges may lead to changes in the port routing of cargo. In one region for example, changing the basis of calculation (including overland transport) to a hard currency basis has led to a diversion of traffic to other ports, whose use became economic in the new situation.

4. Effect of policies of governments and other institutions: non-transport sector policies

159. Membership of a customs union or similar organisations may affect the geographical direction of foreign trade; the volumes of imports and exports of specific commodities; the nature of the import and export traffic, and therefore the types of vessels used and of port facility requirements. Membership of a customs union is likely to increase the importance of trade with other member states, which should benefit from the removal of tariffs and other restrictions. Certain ports are geographically well located for transport to and from other member states, and may consequently benefit from being within the Customs Union. Other ports may have been developed more in relation to the requirements of trade with distant ports, and may be locationally less advantaged. Furthermore, the change in the direction of trade (favouring trade within the customs union) may also imply a decrease in the volume of imports of certain commodities formerly imported from other parts of the world in large vessels, which used deep water port facilities.

160. Regional policies may encourage growth in industrial development areas where there is a need to generate employment and promote development. If a port is located in a "development area", the port will naturally be interested in industrial or other port-using development; and also in any government policies to stimulate regional development, e.g. by improving inland transport access, which may also be of direct interest for the port's own development.

161. Anti-pollution and environmental policies may be of considerable importance to the commercial development of a port, and to the development of its traffic. These policies may determine the types of industries permitted in a particular region, and the types of traffic that may be handled by a port. For example anti-pollution and environmental policies in one densely populated country discouraged the smelting of certain non-ferrous ores, and resulted in the commodities being smelted in the country of their origin: with the output being shipped in the form of ingots, and not of ore. There may be locations where manufacturing processes which are more generally environmentally undesirable are permissible, because of favourable geographical/physical and other conditions. If so, this obviously can have traffic implications for a port.

162. As part of government endeavour to encourage commercial and industrial development, free ports, free trade zones and export processing zones have been established in various countries. The nature of the institution that is established depends on the purposes that it is intended to fulfil, and also on any national or international restrictions that may have to be observed. As noted in the last chapter, free ports are intended to attract shipping and cargo, especially where there may

be a need for trans-shipment. A free port may be used to develop entrepot trade, with cargo being held free of all duties at a distribution centre in the free port. In free trade zones/export processing zones, new traffic can be generated by imported material and re-exported products.

5. Government policies: transport sector

163. Port planning and development policy may be government-controlled, whether as part of a policy to optimise the use of scarce resources, or to encourage port development in regions where it can stimulate economic growth. The required rate of return on capital investment and the freedom to set port charges have important influence on port marketing.[44]

164. Government shipping policy can affect the use of ports and the scope for the successful marketing of ports. For instance, in certain countries, cabotage laws have existed for protecting national flag shipping in relation to cargo movement between ports along a country's coastline. In practice, this has sometimes resulted in container ships trans-shipping at major ports in other countries, then cargo being brought by feeder ships to the country's ports, thereby legitimately avoiding the country's cabotage laws.

165. There can be a similar situation regarding restrictive regulations, e.g. the provision of road transport to serve ports in certain countries. By discouraging competition such restrictions may have the effect of increasing transport costs: sometimes with the effect of encouraging transhipment through a foreign port, with the use of feeder shipping services to avoid high land transport costs.

D. Port marketing -- targets and plans

166. By marketing research we know what users need. We should specify therefore when, where the marketing should be carried out and who should be the marketing target.

167. The timing of port marketing action is a very important marketing point. There is no better time for marketing than when a change of port call becomes necessary or desirable. Shipowners are often not very interested in changing their ports of call. This may be because a good understanding, and co-operation, has been built up between the shipowners (and their agents) and the personnel at the port. Not only the port authority, but shipping agents too, are likely to do all they can to retain a shipowner's business at a port. Apart from this (and depending on the nature of the trade), there may also be a fear that a change of port may lead to loss of traffic to other shipowners.

168. A port should not try to be everything for everyone, but should identify its areas of strength and weakness and satisfy the selected target users' needs. Port marketing involves manpower and other expenditure, and clearly, there is a need to be selective, to ensure that marketing aimed at securing new business, is carried out only in relation to appropriate traffic. "Appropriate traffic' in this context means traffic that can be attracted, and is worth attracting.: It is pointless to carry out marketing work which has only a very small chance of success; and it is inappropriate to carry out marketing work to secure traffic which will not be sufficiently profitable. One should avoid attracting traffic that cannnot be handled without the loss of existing traffic (because of capacity problems). Caution is needed when new business is likely to be in direct competition with the long established trade of the port.

169. A useful starting point for marketing target setting is to analyse, by comparing the port with competing or other ports, the port's underlying advantages and disadvantages, the factors which may provide opportunities for its growth, and also such negative factors as may affect the future development of a port's traffic. This is called the "Strengths and Weakness, Opportunities and Threats" (SWOT) approach.[45] The 'SWOT' approach may sound very theoretical but it is in fact no more than a practical framework for systematic thinking, which draws attention to possible problem areas and possible areas and opportunities for growth.

- By 'Strengths' is meant factors which give a port an inherent advantage in tis ability to attract ahips and cargo. Strengths may relate to attractive location in relation to shipping routes and the origins and destinations of cargo; they may be physical (e.g. depth of water, extent of land areas alongside the port); they may be institutional; they may relate to the availability and

performance of manpower, and so on.

- 'Weaknesses' is the opposite of the strengths just listed, e.g. distance from shipping routes and areas of cargo origin/destination. Weaknesses may also include relatively high levels of port charges, and/or other charges payable at a particular ports as compared to competing ports. Such relatively high levels of charges may have arisen for various reasons, such as the physical characteristics of the approaches to a particular port (perhaps necessitating a considerable amount of dredging), or because of differences in the extent and source of cost recovery, e.g. from shipowners, rather than from general taxation. The existence of light dues in some countries is an example. There are also ports where users have to pay charges like conservancy dues, to cover the cost of using access channels to a port, while in other countries such costs may be partially or fully covered from general taxation. The relatively limited development of trans-shipment at a potentially well located port may partly be a consequence of the existence of institutional, e.g. regulatory factors. In some ports, the development of transhipment has been discouraged by the existence of cabotage laws; elsewhere, transshipment may be discouraged by rigorous customs examination requirements of transshipment cargo.
- 'Opportunities' for a port may arise from a substantial increase in the volume of trade from/to its hinterland, thereby increasing the scope of attracting direct deep-sea calls by vessels. Opportunities may arise from improvements in inland transport infrastructure servicing a port, and from decreases in inland transport costs. Opportunities may also arise from the development of free trade zones at or near a port, and of course from membership of a customs union. In addition, opportunities may arise because of the relatively favourable resource situation at or near a port, compared to a competing port - e.g., if comparative shortages of labour and land in a competing port, make them costlier.
- The 'Threats' from a port marketing standpoint may include the impact of the growth of vessel size: larger vessels may be unable to use a port, or may change their port routing for economic reasons - to reduce the number of port calls, and/or to serve larger hinterlands. Threats may also include expansion at competing ports which may seek additional traffic, to utilize their increased facilities.

170. The 'strengths and weaknesses, opportunities and threats' approach is potentially very useful, but one comment should be made: competitiveness and other factors considered in such an approach are variable, and it is necessary to keep the analysis updated.

171. Every marketing action should have a very precise target. The target can be one or several kinds of cargo (or shipping lines) in one particular area, requiring marketing action such as one page of publicity at a local or regional newspaper or magazine. Marketing action may be more specific, aimed at one shipping line, one shipper or one consignment. In that case, the key person concerned should be identified as the target for marketing.

172. In any given organisation, the decision-makers concerned with ship routing and the choice of port should be identified beforehand. While there may be one body technically deciding port routing, in practice, several bodies may influence port routing. A shipowner may technically determine at which ports his vessels will call, but would nevertheless keep himself informed as to the reactions or potential reactions of other interested parties. This is true even in the case of container shipping services, for instance, shipowners may be reluctant to work their services on the basis of too many port of call, basis, because of the effect of this on cargo transit time, and on the reactions of shippers/receivers.

E. Port Marketing -- promotional actions

173. On the basis of the research done, when the targets have been set and plans made, port marketing comes to its final stage, viz. promtional action, through which targets should be reached, plans realized and, as described earlier, new information obtained. Here the question is how should port marketing be carried out. Port marketing actions can be divided into two categories: information-related and service-related.

174. Information-related actions are those aimed at the distribution and collection of information. They are as follows:

1. Marketing calls/interview

175. In today's business world, one of the principles of management is to treat a customer like a "king". All ports, especially the second and third generation ports have to follow this principle. They should not wait for the customers to pay a visit, to inform of their requirements. It is up to the port organisers to take the trouble to be in the customers' offices, whether at home or overseas, inquiring about their needs and telling them how best these can be satisfied. Visits of the port's senior staff to main users' organisations should be regularly arranged. As noted in relation to marketing targets, such trips should have, as their goal, the achievement of preset objectives and the successful interviewing of key persons. Personal relations often play a decisive role in the choice of a port. Good personal relationships and mutual confidence between port staff and the key persons in user companies can be established only by frequent personal contact. As a priciple, "when marketing the port with shipowners, we should do it with the help of shippers i.e. those who control the flow of cargo. When marketing the port with shippers, we should do it with the help of the shipowners who call at our ports and their agents i.e. those who control the shipping possibibilities."[45]

2. Publication

176. Port publication, as mentioned before, is one of the most commonly used marketing methods. The publication of magazines, reviews, brochures, newsletters, newspaper etc. can be done on a more or less regular basis. The subject of such port publications vary from general information about the port and its development to specific activities of the port. They are generally aimed at people directly involved in trade and transport and also other parties with interests in the ports. Every port should have its own publication. In the survey conducted by the IAPH in Jaunary 1991 (mentioned in para. 72), 92 per cent of the 116 ports questioned say that they have port promotional publications and more than two-thirds of them have more than one publication. Such publications serve a dual purpose. One is to keep port users and other relevant parties well informed about the port's new developments, projects and performance, to convince them to use or continue to use the port. The other is to distribute information within the port. This second function should not be underestimated since successful marketing requires the efforts of everyone in the port and one of the most important requisites for marketing is the overall knowlegde of one's own port. The internal distribution of such a publication can also encourage a sense of participation among the employees in the port and stimulate their motivation.

3. Publicity

177. Although ports are not mass media like television, advertising through the local, national, international, financial, economic or commercial press, is necessary for communicating the image of the port and some basic information to the port using public. The image of a port is of great importance in the decision-making process of a port user, since very often a port routing decision is taken before ports are even aware of it (let alone carry out any marketing actions). A port's image certainly can not be established overnight through e.g. a simple visit. A specific press on international transport is one of the main mediuma for port publicity. One successful example in this respect is the port of Dubai, United Arab Emirates. The image given by frequent publicity in all the major international transport publications is that of a sea/air transit port. Even a new term has been created: "Dubai-it", which strengthened the public's impression of the port. Dubai is actually one of the biggest sea/air transit ports in the world.

4. Visits

178. Ports should invite their users, other relevant persons and even the general public to visit the port to get them better acquainted with port production (e.g. organizing "Open-door Days"). Some port users, especially shippers, generally do not know how their cargo passes through the port. New technology, which can greatly improve port services should be demonstrated to port users so that they can feel renewed confidence in the port and its services. Such promotional visits are supposed to be organized for potential port users and people who may have an influence on actual or future port routing decisions. Special facilities for this purpose must be set up. In many ports for example, port models are constructed enabling all visitors to easily and effectively benefit from a spectacular port tour. Films and videos are also valuable tools to achieve this aim.

5. Seminars

179. Port marketing actions can be realized in indirect ways. Organizing seminars is one of them. This is specially aimed at inviting participants from developing countries. The economic growth rate in a number of developing countries is much higher than the world average or the average rate in developed countries. The potential economic strength of developing countries has made some ports in developed countries deeply aware of these future port users. Organizing assistance activities such as port seminars, is an efficient way of establishing long-term relationships between people of different countries. Some ports with farsight have been active in this field. Even within the developing world, such seminars on the technological or commercial aspects of port management give positive results with mutual benefits for both organizers and participants.

6. Conferences/receptions

180. This port marketing action sometimes takes the form of "Port day". Nowadays, it is still commonly used as a promotional action, particularly in the case of large ports. Conferences/receptions are normally held in a port-user concentrated region within the country or abroad. A luxury hotel is commonly chosen as the reception hall, with or without the formality of speeches and presentations on behalf of the port, and a cocktail drink is always offered. A helpful customs service is of great importance in port marketing. It is always good when organizing a visit to port users to have the Drector of the customs office of the port as a member of the delegation in order to secure the understanding and cooperation of the customs.

A "Port Day for Antwerp" organized in Lyon

In March 1991, the Port of Antwerp Promotion Association (Assiport) organized a "Port Day for Antwerp" meeting in Lyon, France. It was a party-like meeting - limited speeches and presentations. There were 257 participants. Poeple just engaged in casual talk. Assiport simply provided an opportunity for port people and their clients to meet where ideas could be exchanged and problems discussed, questions asked and answered, and propositions made. The objective of the meeting was to harmonize cooperation and strengthen the relationship between port and its users. Even in today's world of communication marvels, where a fax machine, telephone can reach over thousands of kilometers, there is still no substitute for the good, old-fashioned business meeting where you shake hands, renew acquaintances, develop relationships and earn the trust of others. With such a meeting, a clear message is passed on to port users: "We thank you, and we appreciate your business." It would be interesting if we looked at the composition of the participants. From a total 257 people, 68 or 26.5 per cent came from Antwerp and most of the others came from Lyon or some nearby region.

Port of Antwerp has been very active in this Rhône-Alpes region. In 1989 for example, 528,000 tons of cargo to and from this region passed through Antwerp (208,000 tons in 1980) which make Antwerp the second most important maritime port of the region with a coverage of 17 per cent (after Marseille 33 per cent) of total traffic and 84 per cent of all traffic handled by foreign ports.

Source: "Anvers Traite 17 % du Trafic Rhonealpin", Le Lloyds, 25 mars 1991

181. The above six categories are so-called information-related marketing actions. The main service-related actions are port pricing and special arrangement of port services.

7. Pricing/port charges

182. For marketing purposes, a primary need is that information on port charges must be simple and easily understandable to port users. Port charges and tariff should be realistic, and encourage better utilisation of port facilities. For instance, a port authority may vary the port charges between its ports because costs differ, and because there is a need to encourage traffic to under-

utilised ports. For the same reason, it is not desirable to allow the same free storage period at two different container ports, when one of these is over congested and the other is under-utilised.

183. There may also be a need for a flexible pricing structure, to allow a port to vary according to differences such as in throughput. A port authority should have a flexible and harmonious structure of charging arrangement. Different users may have different preferences as to how they are charged, e.g. separate charges may be consolidated into a simple single charge if a user prefers this. Port charges are an important marketing tool, which is no doubt why various ports wishing to develop trans-shipment traffic have lower charges on such traffic (and may also give longer, sometimes substantially longer, free storage periods for trans-shipment traffics).

184. It is important that the pricing system be clearly presented to current and potential users. Every year the marketing department of the Port of Singapore Authority publishes a port tariff booklet. Figure IV-2 and figure IV-3 are examples taken from that booklet for 1990.

8. Special arrangements/service package

185. Users' needs are neither uniform, nor fixed. They may change constantly and from one user to another. Besides marketing information, users expect that a proposed solution is fully suited to their particular problem. Variety and flexibility of port service patterns are indispensable to effective marketing. The possibility of such tailor-made service packages include free zone, cargo processing, cargo distribution, information service, cooperation/joint venture, investment, equipment leasing etc.

186. In this chapter, an attempt has been made to answer: (a) ***Why*** the need for port marketing - by explaining the relationship between marketing and the port's general objectives; (b) ***What*** should be done in port marketing - by analysing marketing information and research; (c) ***When and Where*** marketing should be carried out and ***Who*** should be the target - by describing targets and plans; and (d) ***How*** marketing should be carried out - by studying actions. There are still two more questions which remain unanswered: ***By Whom*** and ***For Whom*** should port marketing be carried out. These questions will be analysed in the next chapter in relation to the port community.

Figure IV-2
Extracts from the "Tariff Book 1990" of the Port of Singapore Authority
(1 Singapore dollar = approx. US$ 0.53)

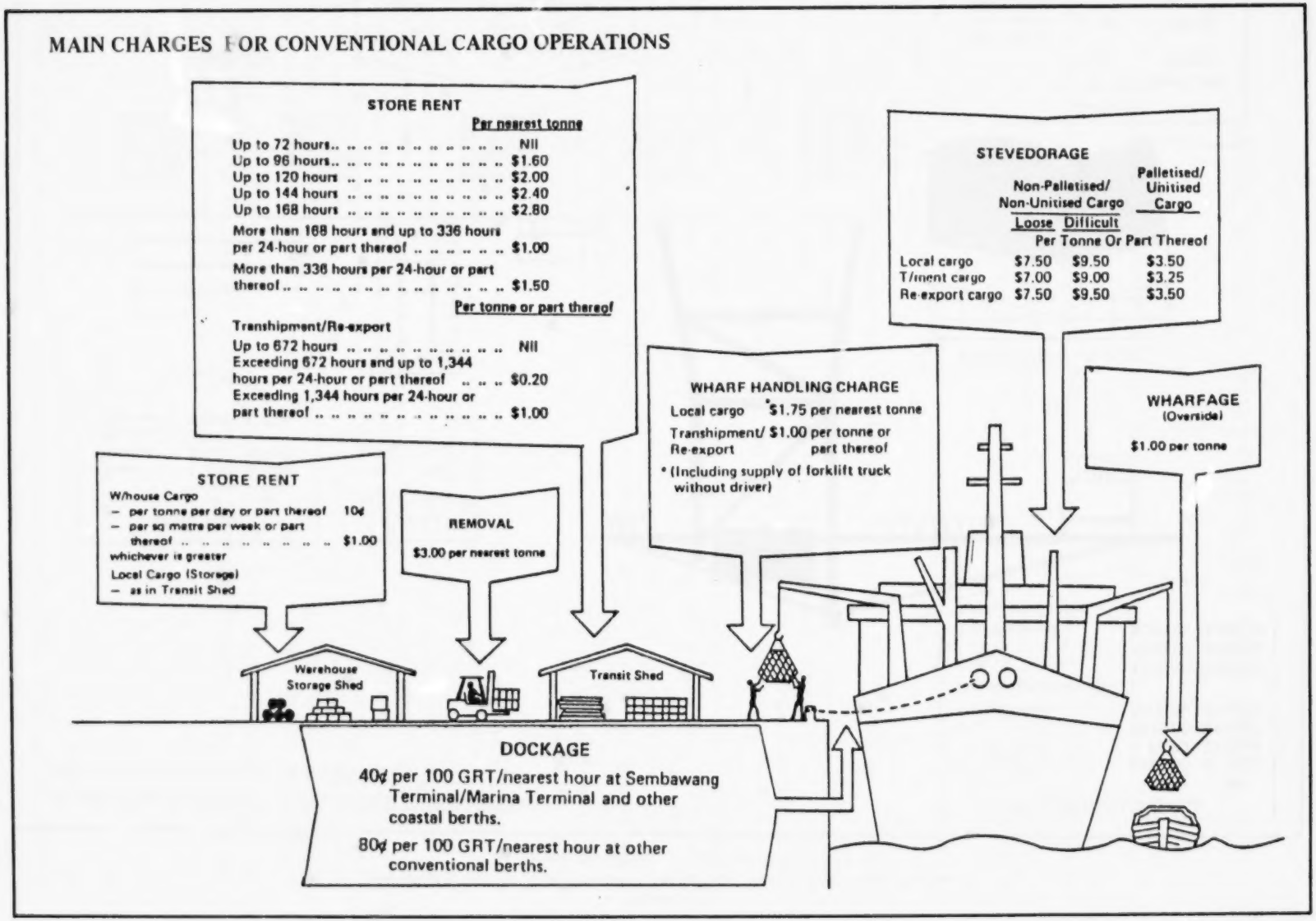
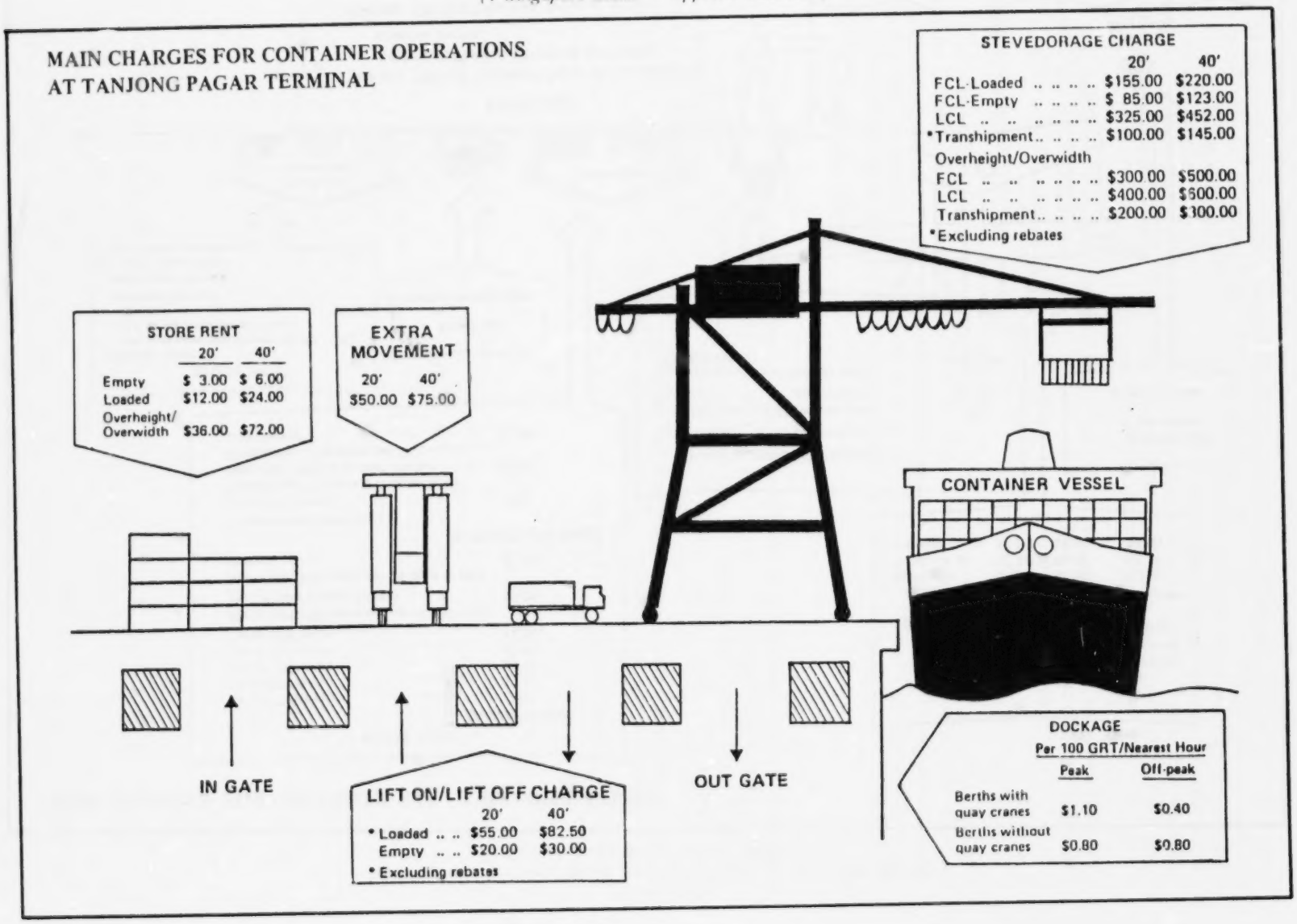

MAIN CHARGES FOR CONVENTIONAL CARGO OPERATIONS
STORE RENT
Per nearest tonne
Up to 72 hours .. .. Nil
Up to 96 hours $1.60
Up to 120 hours $2.00
Up to 144 hours $2.40
Up to 168 hours $2.80
More than 168 hours and up to 336 hours per 24-hour or part thereof $1.00
More than 336 hours per 24-hour or part thereof $1.50
Per tonne or part thereof
Transhipment/Re-export
Up to 672 hours .. .. Nil
Exceeding 672 hours and up to 1,344 hours per 24-hour or part thereof $0.20
Exceeding 1,344 hours per 24-hour or part thereof $1.00
STEVEDORAGE
Non-Palletised/ Non-Unitised Cargo
Loose
Difficult
Palletised/ Unitised Cargo
Per Tonne Or Part Thereof
Local cargo $7.50 $9.50 $3.50
T/ment cargo $7.00 $9.00 $3.25
Re-export cargo $7.50 $9.50 $3.50
WHARF HANDLING CHARGE
Local cargo *$1.75 per nearest tonne
Transhipment/ Re-export $1.00 per tonne or part thereof
* (Including supply of forklift truck without driver)
WHARFAGE
(Overside)
$1.00 per tonne
STORE RENT
W/house Cargo
– per tonne per day or part thereof 10¢
– per sq metre per week or part thereof $1.00
whichever is greater
Local Cargo (Storage)
– as in Transit Shed
REMOVAL
$3.00 per nearest tonne
Warehouse Storage Shed
Transit Shed
DOCKAGE
40¢ per 100 GRT/nearest hour at Sembawang Terminal/Marina Terminal and other coastal berths.
80¢ per 100 GRT/nearest hour at other conventional berths.

Figure IV-3
Extracts from the 'Tariff Book 1990' of the Port of Singapore Authority
(1 Singapore dollar = approx. US$ 0.53)


MAIN CHARGES FOR CONTAINER OPERATIONS
AT TANJONG PAGAR TERMINAL
STEVEDORAGE CHARGE
20' 40'
FCL-Loaded $155.00 $220.00
FCL-Empty .. .. $ 85.00 $123.00
LCL $325.00 $452.00
*Transhipment $100.00 $145.00
Overheight/Overwidth
FCL $300.00 $500.00
LCL $400.00 $500.00
Transhipment $200.00 $300.00
*Excluding rebates
STORE RENT
20' 40'
Empty $ 3.00 $ 6.00
Loaded $12.00 $24.00
Overheight/ Overwidth $36.00 $72.00
EXTRA MOVEMENT
20' 40'
$50.00 $75.00
CONTAINER VESSEL
IN GATE
OUT GATE
LIFT ON/LIFT OFF CHARGE
20' 40'
* Loaded $55.00 $82.50
Empty $20.00 $30.00
* Excluding rebates
DOCKAGE
Per 100 GRT/Nearest Hour
Peak Off-peak
Berths with quay cranes $1.10 $0.40
Berths without quay cranes $0.80 $0.80

Chapter V

PORT COMMUNITY AND A PORT COMPETITIVENESS MODEL

A. General interests of port activities and common consciousness

187. Port marketing is playing an ever important role in port development both in developed and developing countries. However, who should carry out port marketing and for whom should the marketing be carried out? These are vital questions to be answered, since the functions of ports, whether a first, second or third generation port, are carried out by various organisations located in the port area.

188. No matter how big and complex it may be, a port is always one integrated entity with three features:

- All port activities have the same categories of customers (shippers and shipowners or we can say cargo and ships)
- Generally, customers need a complete set of port services rather than an individual one (they rarely need exclusively a single port service, e.g. piloting, or customs clearance).
- Usually, one activity or service cannot be developed without coordination and parallel development of all other relevant activities in the port.

189. Although financially and organisationally separated, the various port activities are logically and closely related by the cargo distribution process. Obviously, each activity has its individual interest, for instance, storage companies may be concerned with port land leasing rates while tug companies are more interested in the level of oil prices. Yet all activities have a general, common interest, that is relevant to all. The most important one of these general interests is port marketing and development, for which all activities in the port area are totally interdependent. A more detailed analysis of this can be seen in the recent UNCTAD study on port organisation and management[47], which shows how important the functions of development and marketing are for the commercial success of a port.

190. Port marketing and all other port development activities can be workable and effective only with efforts of all parties in the port area. A cargo handling enterprise cannot expect to install the new equipment which will double the loading/discharging rate without making sure that the storage space is also enlarged to absorb or to feed twice as much cargo to this new machine in the same period of time as it did for the old ones. Another example, besides port marketing, is the EDI system, which will only be meaningful when everybody makes the same efforts. Port marketing is just like a symphony orchestra - every player has his own role, yet, harmonious team work is critical. The real achievement is only the result of the joint effort. However, joint effort does not mean no competition. First, the port activities should be promoted together, so that competition amongst the various units like stevedors, shipping agents, freight forwarders etc. can take place.

191. Like in an orchestra, in port marketing, a clear message is to be communicated to the different port activities that **one can only prosper when the whole port prospers.** This should be the common consciousness of every employee in the port.

B. Port community

192. What is a port in the marketing sense? For some, a port refers to the port authority. However, inter-port competition is not usually between port authorities (when they are not operating ports), but between private enterprises located in the ports concerned. The port in the marketing sense is referred to as the Port Community, which includes all activities in the port area or relevant to port production, whether they are public or private, commercial or administrative.

193. A port community is usually the fomal association of all organisations and persons involved in the transfer of goods (and passengers) through the port area. The port area is a concept which goes far beyond the mere traditional port boundaries. In some big ports, it includes a distance of 10 or 20 kms from the quay side. A port community is generally based on two pillars: the port authority and the association of all the port activities and users. The port authority usually represents the interests of the government and the public. The port community is in fact the alliance of all major groups in the port area, each group defending their interest and promoting and coordinating their activities. For instance, in the major ports, usually there are associations of freight forwarders, insurers, cargo handling companies, shipowners, shipping agents, ship-repairing companies etc... Besides these groups which represent the main activities in the port, there are some other organisations that may play a significant role in port marketing:

- Trade Associations Such organisations may include trade associations relating to different types of cargo, moving through a port. There may be wide variations in the activities of different trade associations. Some trade associations may have only relatively formal activities, of representing their member companies who may promote their use of the port and may themselves appreciate positive action by the port in making contact.
- Port User Bodies Such as Port User Consultative Committees or Shippers Councils. Port Advisory Boards may also exist, with meetings attended by representatives of port users, and the staff of the port organisation. these bodies can provide an opportunity for port users to draw attention to any specific problem that may arise. However, they can also have a more positive role, viz. helping the port organisation to formulate its plans for the port in relation to commercial and other requirements. Such meetings can also provide an appropriate occasion for the port authority to explain its development plans so that a port can act in a manner appropriate both to its own commercial interests and to the interests of its users.
- Chambers of Commerce The nature of chambers of commerce varies - in some countries, chambers of commerce are government-associated organisations, elsewhere they are voluntary associations of companies. The precise nature of their finance and functioning will determine how actively they can co-operate with port organisations. Chambers of commerce can at least provide potentially useful points of contact, some chambers of commerce organize visits to other countries to promote trade, thereby indirectly promoting the use of the port and bringing commercial benefits to the port. This is of course especially true where port-related activities paly an important role in the economic and commercial life of the city or region. Chambers of commerce may also receive visitors from other countries who may be put in contact with the port organisation, and with other bodies forming part of the port community.
- Port Community and Government Infrastructure Development. When there is a community feeling between a port and the city region within which it exists, the city/region may encourage, or even pay for, improvements in physical communications, e.g. road access, to and from the port. It may also encourage (port-using) industrial development - and help in port planning by preserving land areas near deep water from other develpment, by improving communications, or by ensuring the availability of land for future port development.

194. There are various types of port community structure. In Antwerp it is known as Assiport (Port of Antwerp promotion Association), an organisation in charge of port promotion and Agha, an organisation representing all private sectors in the port area. In Rotterdam, it is the Port Promotion Council and Port Companies Association. In the port of Rouen, it is called Rouen Port Development. In many Asian countries and in North America, the port authorities are the responsible organization. In some other ports, it is the Chamber of Commerce or even the Town Hall which is entrusted with port marketing. Usually it is a non-profit-making organisation, with a Chairman and a Board, a budget financed through contribution from the members and a full-time or part-time secretariat. When the port is small, arrangements can be made with existing organisation e.g. Chamber of Commerce, in order to minimize fixed (staff, building etc.) and variable costs. Regardless of the different forms and structures in each port, the objectives of the port community are almost the same: it is in the general interest in the well-being of the port.

195. The port community cannot achieve long term results without the support of the employees who are representing the interests of port personnel. It is only when the employers, the users and the port personnel are all convinced that their future depends on their capacity to merge efforts and gain new traffic, that the port community is born. This implies that measures are taken to ensure that all the members of the community will benefit from the results achieved.

196. As described earlier, port marketing and general back-up should be carried out by port community rather than by any single enterprise. The port community is entrusted with two main

tasks: (a) coordination within the port area as well as with organizations outside the port area and (b) port promotion, which is not abstract or isolated. It is, in fact, a planner and an organiser when carrying out marketing activities. To illustrate this we can refer to two examples as shown in the following boxes: One is of the Antwerp port community: ASSIPORT, the other is of a marketing promotional action being taken in Brazil by the port of Rotterdam.

A well structured port community in a developing country

In Jamaica, the port of Kingston maritime & port community is organized around the Shipping Association of Jamaica. The principal actors of the community are as follows:

- Shipping Association of Jamaica (SAJ) was set up to consider and regulate all matters affecting the interest of its membership; to protect and support the carrying out of members of the Association in rates and remuneration for port labour and establish fair and responsible rates of remuneration and conditions of labour.
- Port Authority of Jamaica is responsible for the overall supervision of the island's ports and other shipping facilities; navigation of all vessels and tariffs on public wharves. It is also responsible for the expansion and upgrading of the country's ports, such as initiating the development of Export Free Zones in Jamaica.
- Wharf Companies Kingston Terminal Operator Ltd (KTO) is jointly owned by Kingston's Wharves Ltd and Western Terminal Ltd. and under an agreement with the Port Authority. KTO manages and operates the container terminal. Western Terminal Ltd (WTL) operates berths 1-4. Kingston Wharves Ltd (KWL) operates berths 5-7. These three companies are private, whereas the infrastructure and superstructures are owned by the Port Authority at the container terminal, everything including infrastructure and superstructures at other two wharves are owned by KWL and WTL.
- Harbour Master Dept. is responsible for monitoring navigational aids and for advising on matters affecting the movement of ships.
- The Joint Industrial Council for Port Bustamente was established to secure the greatest level of cooperation between port labour and management.
- Port Computer Service Ltd is owned and operated by SAJ and is designed to handle the computerization of not only SAJ activities but also to provide computer services for member companies and the port.

Antwerp Port Community

The Antwerp port community was one of the first to be formally organized around the following lines:

- Organization

  The organization of Antwerp port community is called ASSIPORT (Port of Antwerp Promotion Association). It consists of a 12-person Board (coming from 12 different professional organizations representing activities relevant to the port of Antwerp, such banks, Chamber of commerce, maritime interests, ship-repairing industries, shipping agents, shipowners, shippers, cargo-handling companies, etc.), a secretariat, and working groups (covering different countries and/or regions in the port's hinterland and overseas, some other groups are competent for specific traffics).

- Legal status

  ASSIPORT is a private, non-profit-making organization. It has three objectives: To harmonize the relationship between different transport and related activities; to contribute to the expansion of the port by obtaining more traffic; To build and improve a public relations network in order to achieve the preset objectives.

- Main activities

  - Information: Assiport gathers all relevant information in various ways, such as visits to port users or through the government diplomatic agents and the mechanism of the Belgian Chamber of Commerce in foreign countries or even through the port's own representatives in some selected countries.
  - Research: Assiport is in charge of marketing studies. The work is usually carried out by its working groups or in cooperation with the 'Antwerp Expansion Research Centre' where 6 full-time research fellows are employed.
  - Voyages, conferences and receptions are organised by sending delegations abroad. Normally, these methods are employed once the target group is determined. When catering for a wider audience, other forms such as conferences, colloquia are used.
  - Visits: Port users and the public are invited to the port's "Promotion Days" which are actually "Days-of-information". There are debating sessions and tours of the port. Assiport regularly organizes in conjunction with the city of Antwerp, "Open-door days of information" in order to sensitize the central/local authorities as well as the local population to port interests and activities.
  - Exhibitions and fairs: A policy of 'presence' is maintained at certain specialised exhibitions and fairs by having a Port of Antwerp stand permanently on display, representing the port authority and private firms. Here is where Assiport acts as coordinator.
  - Publications: Assiport collaborates with the city of Antwerp and publishes a trimestrial magazine called 'Hinterland' with 16,000 copies for each issue. The magazine is published in four languages (French, English, German and Dutch); the port of Antwerp monograph containing basic information on the port; an annual handbook of port regulations, port tariffs and 'who is who' of the port (also in four languages); a 'Newsletter' published in Japanese four times a year; a port guide and a map of the port.
  - Articles and advertisements: Assiport keeps in constant touch with all types of media, such as newpaper, magazine, newsagencies, radio T.V. etc.
  - Information services: Assiport also acts as a source of information for enterprises, associations, government authorities, research centres, institutes and students etc who need information on the activities of the port. Assiport also organizes training courses and seminars.

- Finance of ASSIPORT

  Assiport has four financial sources:

  -The annual contribution of its members

  -Subsidies given by the 'Foreign Trade Funds'.

  -Financial assistance occasionally provided by regional and local government authorities.

  -Benefits from the sale of Assiport publications and documents.

A Promotion voyage of the Port of Rotterdam in Brazil

In 1990, a Rotterdam delegation paid a two-week visit to 8 cities in Brazil. The delegation was headed by the Rotterdam port Commissioner and organized by Rotterdam Town Hall's Economic Promotion Support Bureau. What is notable about this port promotion delegation is its make-up: representatives from competing companies worked together to market Rotterdam as one integrated product. That is the spirit of common consciousness. The delegation was a mixed group with representatives from the business community (stevedores, shipbrokers, forwarders, consultants and bankers etc) and official representatives of the local authorities (Town Hall, Port Management and Development Corporation) and the organisations and institutes (Port Companies Association and Chamber of Commerce and Industry). Six seminars were held in various places for the experts from the business community; these attracted some 325 people. The representatives of the participating companies explained all aspects of transport and trade with Rotterdam including the handling of containers, fruit and bulk, storage and distribution, and the local banking and tax system. Knowing that the Brazilian economy needs to be opened up to markets outside Latin America, the delegation proposed that the services offered by Rotterdam Distribution be used and showed how exporters could save costs and be more competitive on the European market.

Source: Port of Rotterdam Magazine, Feb. 1991

C. A model of port competitveness

197. All ports are directly or indirectly in a competitve market. Several factors, as noted earlier, affect port competitiveness. A port can modify its competitive position compared with other ports and with a particular port user, by improving one or several of those factors. However, improvement should not be done blindly. Often people believe that low port charges denote better competitiveness. Such a simplification of the situation will certainly not lead to satisfactory results. The problem is more complex. Ports that want to be more competitive for a particular type of cargo, must know exactly which factors should be improved and to what extent and what the outcome will be.

198. As has been noted, ports, especially a third generation port, is a node or a centre in the integrated transport and distribution chain. With intermodalism and door-to-door transport, shippers often don't care, and are often unaware of the port through which their cargo must pass to reach its final destination. Their only concern is to minimize Total Distribution Cost. So ports should improve their competitiveness and formulate their policy from this viewpoint.

199. Total distribution cost does not mean merely charges of various services, but it signifies three basic elements which are: Money, Time, Risks. Shippers choose the route of their transport and distribution chain, thus the port, on the basis of minimum money required, minimum time spent and minimum risks run. In fact a port user (a shipper or a shipowner or a forwarder), when choosing a port (or shipping route) will make a calculation of these three basic elements of possible alternatives, then compare the results and select the best one.

200. It is clear that ports, given their competitive nature, should make the same kind of calculations, when competing or marketing for a definite cargo (or shipping line), and then make the proper adjustments. Obviously, all the factors affecting port competitiveness as noted earlier, influence one or more of these three elements. To make it comparable, a common monetary term can be used. In fact, the time spent and risks run can both be translated into monetary terms. For example, a vessel's time cost can be generally translated into ship's time charter hire, while risks can generally be expressed by the insurance premium or by a coefficient of money cost or time cost.

201. Although it is always difficult to quantify all aspects of port competitiveness, we believe that an attempt should be made in this direction. One of the key characteristics of a successful commercially-oriented port is to understand the criteria by which port users operate when choosing their ports. The model we propose is not a theoretical concept. It has been used by some freight

forwarders. It allows for comparaison with other ports and shows how competitiveness is evolving in the same port. One may find it difficult to make such a calculation (in this case one must work together with freight forwarders and shipping agents because they know much more about the competing ports and the total distribution costs), but merely being familiar with the relevant factors is already an important step towards improving competitiveness.

202. There are one important point to be noted: this model does not measure overall competitiveness, but compares competitiveness vis-à-vis another port for a particular business for one specific consignment or category of cargo carried by one or several definite vessels to or from a fixed destination or points of origin. One port certainly can not be more competitive than another for all kinds of cargoes.

203. The calculation of port competitiveness is as follows:

(1) Money cost for ships per ton or TEU of cargo handled (Cm1). This includes port charges (harbour/wharf dues, piloting charges, tug fees, mooring/unmooring charges etc), all other costs of ship-related services (ship agency fee, ship reparing cost, fuel/oil/lubricant/water supply cost, crew's living cost, ship's refuse/waste handling fee etc.) If it is for liner ships, cargo handling charges should also be included). If any of the above services does not exist or is not of the required quality (ship repairing e.g.), then the extra cost the ship has to meet for having such a service provided elsewhere should be calculated. This extra cost also includes the cost to the vessel sailing elsewhere looking for return cargo or extra cargo, if that is either unavailable or not available in sufficient quantity at the subject port.

(2) Money cost for cargo per ton or TEU (Cm2). Cm2 includes all cargo related charges at port (cargo handling charge if it is not liner ship cargo, port dues on cargoes, costs of necessary storage etc), the total transportation charges (from the port of origin through the subject port to the final destination, or from the origin through the subject port to the port of destination, which includes the reforwarding or onwarding transport charges) and the total distribution charges (cargo transformation, packaging, labelling, grouping/regrouping, stuffing/unstuffing, distribution processing, information processing, and all other services required along the cargo distribution line that are supposed to be done in the port area). If any of the above services does not exist at the port or is not of the required quality, then an extra cost for having this service provided elsewhere should be calculated.

(3) Time cost for ship per ton or TEU of cargo handled (Ct1). Ct1 includes ship's total time cost at port (the time charter hire for the period from the moment the ship arrives at the pilot station to the moment the ship leaves the pilot station for the new voyage, plus cost of oil and provision consumed during that period) The sailing time difference between the competing ports (or comparing port) should be included in terms of time charter hire plus fuel consumption cost. This difference between ports can give positive or negative figures.

(4) Time cost for cargo per ton or TEU (Ct2). Ct2 includes the total cargo time cost of the total transportation period (e.g. the daily interest cost of the cargo's value during the period when the transportation and various distribution activities are completed), and the time spent at the port for various services.

(5) Risks cost to ships (Rm1). All the risks of money or of time, for cargo or for ships are based on past experiences of the port users and other statistical references. Port users need a stable stucture and rate levels of port charges and service costs. Ports that complicate their charge structure and cause port users to pay more or increase the rates of port charges and service costs too often andor too much, are considered more risky. If during the last five years (more or less), the average annual increase in the level of money spent by ships (Cm1) and the average annual cost of accident as percentage of Cm1 is zero, then Rm1 is 1, if the annual average increase of Cm1 and the average annual cost of accident as percentage of Cm1 is 10 per cent, Rm1 will be 1.1.

(6) Risks cost to cargo (Rm2). During the last five years, if the average annual increase of Cm2 and the average annual cost of accident/damage for shippers as percentage of Cm2 is zero, Rm2 is 1; if the average annual increase of Cm2and the average annual cost of accident/damage as a percentage of Cm2 is 15 per cent, then Rm2 will be 1.15.

(7) Risks on ship's time (Rt1). This is the main factor that a shipowner would consider when choosing the port of call. Ships always run the risk of staying in ports longer than planned, because of bad weather, congestion, strike or other social conflicts, port facilities breakdown, inefficient administration and port management. If during the

last five years, ships (or one kind of ship) stayed no longer than expected, Rt1 should be 1; if on average, the stay of ships at the port had to be extended by 10 per cent more than previously planned, then Rt1 will be 1.1.

(8) Risks on cargo's time (Rt2). For the same reason, the same risks of time delay in ports exist for cargoes. Consequently, if during the last five years, cargo (or one kind of cargo) stayed just as long as had been expected, Rt2 should be 1. If on average, cargo had to stay 20 per cent longer than previously planned, then Rt2 will be 1.2.

204. Formulating the above 8 factors, we can calculate the competitiveness of a port by the following model:

$$Ca.i.j. = \frac{[Rm1Cm1 + Rm2Cm2 + Rt1Ct1 + Rt2Ct2]j.}{[Rm1Cm1 + Rm2Cm2 + Rt1Ct1 + Rt2Ct2]i.} - 1$$

Ca.i.j. = Port competitiveness for cargo 'a' using port 'i' compared with port 'j'

205. If 'C' is positive, it means that for cargo 'a' port 'i' is more competitive than port 'j'. The bigger the C is, the more competitive port 'i' will be. To win over cargo 'a', some information-related marketing actions may be needed. If 'C' is negative, it means that port 'i' is less competitive than port 'j' for cargo 'a'. Some service-related marketing actions or other measures are needed until 'C' becomes positive and port 'i' then can get this new business. Furthermore, this formula has other important significance:

- Such calculations should be made for each consignment or shipping line where port 'i' attempts to compete with port 'j', so that one can be clear about the ships and cargoes for which port 'i' is competitive and for which it is not and why. One can see the difference in competitiveness between this port and others, so that this port can set its marketing target and actions more precisely, for one knows now where the potentiel market share is and how much is likely to be gained and where in one's own territory that is one most threatened. So the formula is a helpful tool for long term development strategy of marketing.
- For different kinds of cargo or ships, the role of each of the three basic elements (tariffs, time, risks) is different. For containerized cargo for example, the time factor is normally more critical than the tariff factor, and Ct1 and Ct2 are greater than that for other kinds of cargo, like breakbulk for example. For all low value cargo, port and transport tariffs are usually more important than the time factor in their total transportation cost. To illustrate this, we refer to a survey made in 1982 on the port choice of United kingdom trade.[48] This report shows that some 71 per cent of bulk cargo was handled by local ports which compares with 58 per cent of semibulks, 32 per cent of conventional cargo and only 27 per cent of unitized cargo. Interport competition is more concentrated on container cargo trade which, with a high Ct1 and Ct2, is sensitive to the time factor. That is why the two new container terminals opened in 1990 and located outside the lock of the port of Le Havre are called the "Rapid Turnaround Port". A more interesting example in the port of Vancouver is the recent annoncement of an attractive rate of discount of 30 per cent for container lines making Vancouver their first North American West Coast port of call. Normally ships' first North American port of call is Orkland or Seattle. This caused containers for Vancouver to be discharged several days later and every year many containers destined for Canada moved through U.S. West Coast ports. To recover this cargo, the port of Vancouver has decided to sacrifice 30 per cent of the total container wharfage charges.[49] Because a bigger part of cargo carried by subject vessels are bound for American destinations and calling at Vancouver first means a time-loss for these cargoes. The competitiveness model will show up negative for Vancouver regarding these shipping lines. To convince these owners to call at Vancouver first, the port should get the model to show a positive rating and that means 30 per cent off on port charges.
- The different elements of port competitiveness are interchangeable. An inefficient port can not compete for cargo unless the tariff is low enough. Similarly, an expensive port

can remain competitive by improving port efficiency and shortening service time required. Through the model, one port can know where the limits of its competitiveness lie and how to overcome that obstacle. For certain cargo, the model will show that it is too difficult to compete, e.g. cargo with an origin or destination too far from one's port but too near to the competing port; or cargo that needs special treatment which is not available in one's port but available in the competing port -- that is the limit of a port's competitiveness. A good example is that of the port of New York/New Jersey, which recently reduced the tonnage assessment paid by steamship lines for containers moving over 260 miles from the port to offset the long distance land transport charge which would make it uneconomical to use the port of New York. The New York/New Jersey Port Authority began its sponsorship of a rail container incentive program that provides $25 per import container and $50 for export container to help defray haulage costs of the container.[50]

- This model is an useful tool for port development strategy and tactics making. For a given cargo or shipping service, the role of habit and/or loyalty (gentlemen's agreement) is effective when C' (port competitiveness) in one port as compared with competing ports, is not so important and the market could remain unchanged. But when the difference is big enough, competitive forces will work. A calculation of competitiveness will allow people to know not only where the marketing target and new opportunities lie, but also which part of their existing business is in danger. In fact, all environmental changes as mentioned in the port marketing chapter, can modify a port's competitive position vis-à-vis other ports.
- Even when there is not much inter-port competition, this method would help people to clarify what the port user really needs and what improvements should be done to satisfy them better.
- The model can be used as a good marketing tool. Instead of presenting one's port solely through beautiful pictures, films and videos of expensive shining equipments, which are rarely the real interest of port users, this competitiveness model can be shown to the client to point out how much he can save and how his problems can be solved by using one's port and why. ***Selling benefits not features.*** A clear and frank calculation and this will certainly be more convincing.

NOTES

(1) Review of Maritime Transport - UNCTAD 1989 (TD/B/C.4/34 and corr. 1)

(2) "Partnerships in Intermodal", Distribution, April 1991 p.36

(3) "The establishment of trans-shipment facilities in developing countries" UNCTAD 1990 (TD/B/C.4/AC.7/10)

(4) J. Sinagghe, "Trends in Container Vessel Size", IAPH report April 1989

(5) R. Cooper, "New Zealand Ports Corporatisation and Change", Report at IAPH 17th conference, May 1991, p.225

(6) Port Development International, September 1991, and Zvi Ra'anan, "Should Public Ports Be Privatized?" - World Bank March 1991

(7) "BMW opte pour le centre de distribution de KTN à Anvers", Le Lloyds, 17 mai 1991

(8) "Port Area, A Billion Dollar Yearly Benefit", Port of Toronto News, 1990, p.3.

(9) "Value Not Volume", Port Development International, Feb. 1991, p.44.

(10) Goon Kok Loon, "Interchange of Information between Ports and Port Users", Report of 17th IAPH Conference, May 1991, p.5.

(11) Port of Singapore Authority Annual Report 1990

(12) "Structural Changes in Ports and the Competitiveness of Latin American and Caribbean Foreign Trade", Report UNECLAC, 1990

(13) "Honeywell in Holland: An Integral Part of Global Strategy", Distribution, April 1991, p.34.

(14) "Auckland: Impact of 24 hour Operation", Ports & Harbors, August 1991

(15) European Business Magazine, Rotterdam 1991 and "Anvers, centre de distribution japonaise", Le Lloyd, 29 août 1991

(16) "Caraïbes Export: Présentation du Complexe Euro Caraibeen d'Activité", Journal de la Marine Marchande, 7 juin 1991 and Port of Guadeloupe Authority publication 1990

(17) see Note 15

(18) "Quick Election for Tilbury", Port Development International, April 1991, p.51.

(19) In this respect see UNCTAD documents "Guidelines for port managers on the use of

computers" (TD/B/C.4/AC.7/11) and "Guidelines for port managers on the use of computers: Computerized information systems for port operations" (TD/B/C.4/AC.7/11/Supp.1)

(20) see Note 11

(21) see Note 11

(22) see Note 15

(23) see Note 5, p.228

(24) see Note 12, p.71

(25) see Note 3

(26) "Principles of modern port management and organization" forthcoming report of UNCTAD 1991 (TD/B/C.4/AC.7/13)

(27) "Transport - Genie in A Bottleneck", Seatrade Business Review, Feb 1991 and "Transport Switch for Evergreen", Fairplay, 24 January 1991

(28) R. Goss, "Economic Policies and Seaports" in Maritime Policy and Management, 1990, vol. 7, p.274. Prof. Goss further devides the inter-port competition into three forms: competition between whole ranges of ports or coastlines; competition between ports in different countries; competition between individual ports in the same country.

(29) "Across the Andes", Cargo System, May 1991

(30) "Transitaires: L'ingenierie au service du commerce international", Port Alliance, No.9 Le Havre Nov. 1989, p.29.

(31) see Note 12

(32) see Note 26

(33) F. Denis, "Le Marketing Portuaire", Mémoire du DESS 203 de l'Université de Paris I, 1990

(34) "How North American Ports Market Themselves", Containerization International, Oct. 1990, p.xv.

(35) "Containerport Performance Analysed", Port Development International, Nov. 1990, p.30.

(36) "The Cost of Waterfront Unreliability in 1988", Australian Government Publishing Service 1990

(37) "Evergreen and the Global System", Lloyds List International, July 1991

(38) see Note 34

(39) see Note 12

(40) see Note 26

(41) see Note 12

(42) Eric Pollock, "Marketing, port development and the demand for port facilities". Paper presented at a conference on Port Policy and Practice. UWIST, Cardiff, 21 May 1979, p.2.

(43) This subject has been analysed in detail in a recent UNCTAD study, see note 26.

(44) see Note 26

(45) Eric Pollock, lecture given at Port Management Seminar, Port Kelang, Malaysia, 1990

(46) F. Suykens, "The Marketing of A Seaport", TRANSMED, 1987

(47) see Note 26

(48) see Note 46

(49) "Vancouver Discounts Rates in Bid to Drum up Business", Lloyds List, 11 July 1991

(50) see Note 34